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Texas



WET

LEADERSHIP FOR THE WATER

ENVIRONMENT IN TEXAS

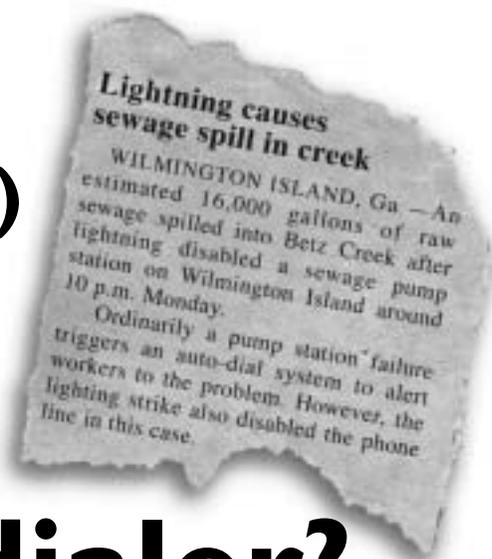
Bayer Material Science LLP Wins WEF Industrial Water Quality Achievement Award



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- Tech Talk
Texas Reuse Revision Rules
Recycled Water: A Practical Guide
- Texas Operations Challenge Teams at WEFTEC.04
- Odor and Corrosion Conference Call For Papers
- Bob Derrington Scholarships

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On the cover: The Bayer Material Science LLC (formerly Bayer Polymers LLC) Environmental Control Department in Baytown, Texas won the WEF 2004 Industrial Water Quality Achievement Award for their above-ground tower biological denitrification reactor, which reduces nitrate discharges to the environment by 96%. Each year, the Industrial Water Quality Achievement Award is given to a corporation and, if applicable, its engineering firm, for the innovative design and operation of an industrial wastewater, pretreatment, or source prevention program that has significant, lasting, and measurable improvements in water quality or degradation prevention.



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A MESSAGE FROM THE PRESIDENT

By Ray Longoria, President



Have you ever wondered why weather forecasters in Arizona are 97% accurate? The answer to that question is that in Arizona, the weather is 97% predictable. As plans were made for WEAT for 2004/05 some predictions accompanied them. Many have already materialized or are nearing fruition. Most of the predictions were destined to occur because the individuals leading the charge were 100% predictable. We are just past the half way point of the year and had a chance to assess where we were at the Board Meeting in October at WEFTEC.04 in New Orleans. I will use a few lines here to recap some of the key happenings, with the most significant at the end of the column.

Texas WET. Texas WET, the magazine you have in your hands, was targeted this year to provide increased value and resources to the full range of our membership. It now includes improved technical content thanks to President Elect **Richard Eason**, increased exposure on Young Professional activities thanks to the YP lead team, increased national level content thanks to our Directors **Ron Mayo** and **Betty Jordan** and increased industry research information thanks to **Dr. Leonard Ripley**. But the biggest thanks go to **John Jadrosich** and **Debbie Bronson** of the Trinity River Authority and TRA itself for the progressive and consistent manner in which they have helped WEAT prepare and produce our bimonthly publication. But all fun has to come to an end. Texas WET has grown and the effort involved to produce the publication has likewise grown. We are at the point now of having to transition to an outside source for production of the magazine. This is the last copy to be produced with TRA's assistance. If you get a chance, please thank all of these individuals for helping to elevate the magazine to its current status.

Specialty Seminars and Training. Safely pumping sustainable FOG. This is not a climatological augmentation process, but rather a compressed descriptor of the successful specialty semi-

Safely pumping sustainable FOG...not a climatological augmentation process...the successful WEAT specialty seminars.

nars WEAT has sponsored to date. Specialty Seminar Chair **Randy Bush** and Executive Administrator **Cheryl Smith** along with the following program chairs have (or will have by the publication date) brought us high quality technical seminars to

help each of us get our jobs done:

- Pump Selection and Design – **Ron Sieger** and **Betty Jordan**
- Doing More with Less: Survival in the 21st Century – **Betty Jordan** and **Leonard Ripley**
- WEAT Safety Seminar – **Martin Tamez** and **Leonard Leinfelder**
- Control of Fats, Oil and Grease - **David James**

Financial Accountability. Treasurer **Brad Castleberry** has greatly advanced our forward progress in better tracking and controlling our finances. We are entering our budgeting cycle for next year aided with a new, more logical chart of accounts and revenue/cost tracking system and the best historical data we have ever had. Great revenue from Texas Water 2004 and the improved budgeting tools at our disposal will better allow us to pursue challenging initiatives in the last half of the year and in to 2005.

Legislative/Regulatory

Education and Involvement. As noted in the first paragraph increased activity in interfacing with the Texas legislature and regulatory agencies will likely be described as the most significant



The WEAT Board of Directors authorized the Management Review Committee to seek and hire a strong candidate to represent WEAT to the Texas Legislature, the TCEQ and other appropriate state regulatory agencies. WEAT's board met in New Orleans during WEFTEC.04.

accomplishments of WEAT this year. Our Association can point among ourselves to various contributions we have made to our industry and to the extraordinary resources that reside in our membership. But outside of WEAT very little of this is known. Also, contributing to the knowledge base on water environment issues in Texas and providing information to legislators and regulators that is based on good science has long been listed as WEAT goal. The seeds for growing and offering this capability were planted over a decade ago. We are now in a position to cultivate that crop thanks to efforts by **Joe King II**, **Rebecca Cobos**, **Brad Castleberry**, **Carolyn Ahrens-Wieland** and **Mary Evans** as committee members of the Legislative/Regulatory Liaison Ad Hoc Committee. At the WEAT Board meeting in New Orleans the Management Review Committee was authorized to seek and hire a strong candidate to represent WEAT to the Texas Legislature and with TCEQ and other appropriate state regulatory agencies. As of press time, we have entered into negotiations with an ideal candidate for the position. I plan to get back with you in the January 2005 issue of Texas WET with confirmation of the addition to our staff.

If you have an interest in becoming involved in this initiative you are invited to join the Government Affairs Committee chaired by **Rebecca Cobos**.

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HIGHLIGHTS FROM THE EXECUTIVE OFFICE

By Cheryl Smith, Executive Administrator



Hats off to WEAT's Safety Committee for producing a very successful seminar that was held on September 24th in Corpus Christi at the Convention Center. We had 192 registrants for the seminar with 11 exhibitors. Many thanks goes to the WEAT Safety Committee members consisting of chairman, **Leonard Leinfelder, Jerry Garcia, Kim Lutz, David Hatley, Ricky Haggard, Earl Foster, Rob Rowell and Martin Tamez**. A special thanks to the **City of Corpus Christi** for all their support. Thanks to all the exhibitors: **Airgas S.W. Inc., Alamo Iron Works, Bacou-Dalloz Safety, Comp Care Medical Clinic, Kennedy Wire Rope & Sling Co., North Safety Products, Rabalais I&E Constructors, Texas Excavation Safety, United Rentals Trench Safety, VWR International, Workers' Health and Safety – TWCC** and the sponsor, **Pro-Ops (Rhonda Harris)**. As icing on the cake, **WEAT Safety Committee** won the WEF 2004 Member Association Safety Award and was honored at WEFTEC in New Orleans.

WEFTEC.04 – Close to 300 Texans attended WEFTEC.04. WEAT held their board meeting on Monday with 25 board members in attendance. WEAT also held a Texas Reception on Sunday evening with over more than 125 people in attendance that were given Mardi Gras beads and served fried Cajun turkey. See pictures here and on back page. WEAT was



Mary Ellen and Tom Whiteworth from Galveston enjoyed the Texas Reception at WEFTEC.04 along with 125 other WEAT members. See more photos on back cover.

extremely proud to send two teams to WEFTEC to compete in the National Operations Challenge events. The TRA CReWSers took 3rd place in Division I. Congratulations CReWSers. See story on page 28.

WEAT/WEF – Control of Fats, Oils, & Grease (FOG) Advanced Training Course – WEAT will co-sponsor with the Water Environment Federation the FOG workshop. The workshop was held November 4 & 5 at the Renaissance Houston

Hotel at Greenway Plaza.

WEAT-WEAT – The second series of WEAT-WEAT has been rescheduled for January 2005. Please check the WEAT website for date and schedule.

Texas Water 2005 – Mark your calendar for **April 5-8, 2005** for Texas Water 2005 to be held at Moody Gardens in Galveston, Texas. Exhibitor Prospectus will be in the mail by mid November. Limited booth space is available. Texas Water 2005 will be an exceptional conference with hotel and exhibit space under one roof.

3rd Annual Odor and Corrosion Seminar
WEAT will hold its 3rd Annual Odor and Corrosion Seminar on May 13 & 14, 2005 at the Sheraton Grand Hotel in Irving, Texas. The Call for Papers is located in this issue and on WEAT's website. Deadline for abstract submittal is February 1, 2005.

CALENDAR OF EVENTS

- November 4-5, 2004WEAT/WEF – Control of Fats, Oils, & Grease (FOG) Advanced Training Course – Houston, TX**
- November 16, 2004Austin Section Meeting
- November 18, 2004Houston/Galveston Section Meeting
- November 18, 2004North Texas Section Meeting
- December 2, 2004MARC Committee Initial Planning Meeting
- January 2005WEAT WEAT – Engineering Economy**
- January 11, 2005Austin Section Meeting
- January 20, 2005Houston/Galveston Section Meeting
- January 20, 2005North Texas Section Meeting
- February 10, 2005North Texas Section Seminar – Biological Nutrient Removal
- March 17, 2005Houston/Galveston Section Meeting
- March 17, 2005North Texas Section Meeting
- March 22, 2005Austin Section Meeting
- April 5-8, 2005Texas Water 2005 – Moody Gardens, Galveston, TX**
- May 13 & 14, 20053rd Bi-Annual Texas Odor & Corrosion Conference and Expo – Irving, TX**
- May 14, 2005Austin Section Meeting
- May 19, 2005North Texas Section Meeting
- May 2005Houston/Galveston Section Year End Social
- July 2005WEAT and TAWWA 5th Annual Joint Summer Meeting



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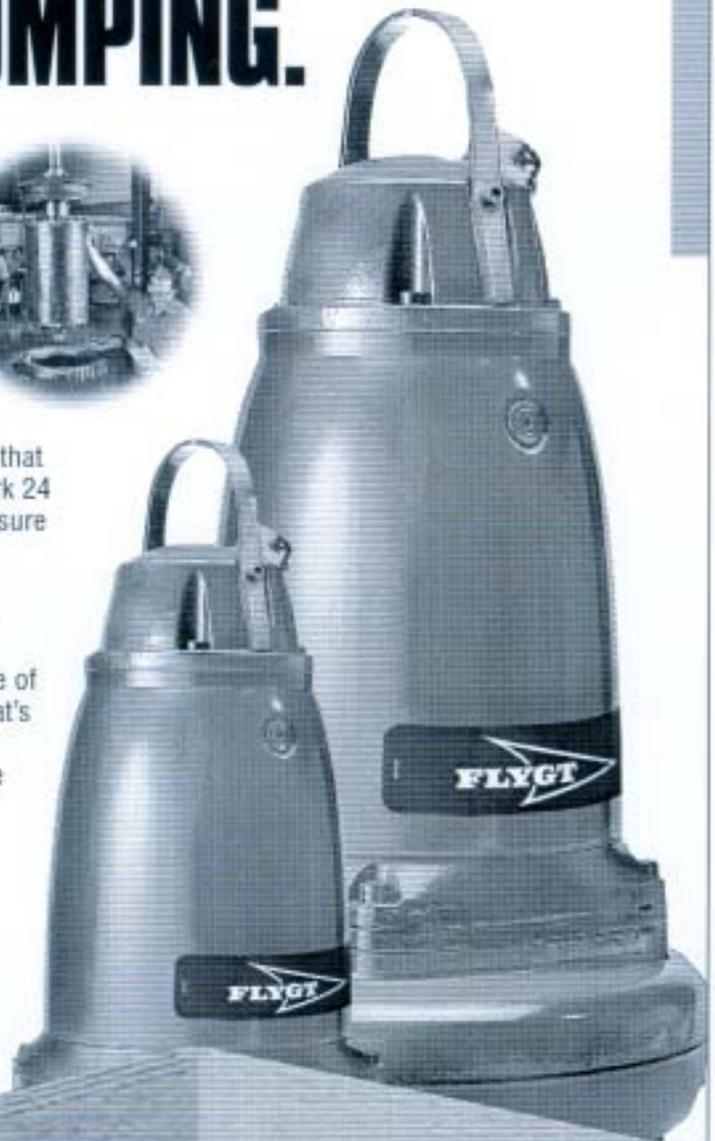
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WEAT SECTION ACTIVITIES

►SECTION 1-AMARILLO - No Report

►SECTION 2-LUBBOCK - No Report

Representative **Dr. Andrew Jackson** - 806/742-2801

►SECTION 3-DALLAS/FORT WORTH

Representative **Betty Jordan** 817/284-2724

The North Texas Section of WEAT is looking forward to its November 18th dinner meeting at which time **Brad Castleberry** will discuss the legal issues associated with water rights permitting and recycled water programs.

Plans for the February seminar on nutrient removal are progressing. **Dr. James Barnard (B&V)** and **Dr. Glenn Daigger (CH2M Hill)** have accepted our invitations to speak on nutrient removal strategies. **Dr. Peggy Glass (Alan Plummer)** and **Glenn Clingenpeel (TRA)** will do a presentation on current TMDL activities and sampling and testing programs to defend your position on TMDLs. The afternoon's sessions will include case studies by local utility and consulting personnel on implementing nutrient removal. Speakers include: **Dolan McKnight (NTMWD)**, **Joe Husband** and **Chamindra Dassanayake (Malcolm Pirnie)**, **Al Sun (CDM)**, and **Leonard Ripley (Freese Nichols)**.

Look for the WEATies, The Nutrient Removal Seminar of Champions advertisement in your mail box. Join us on February 10, 2005, CityPlace Conference Center, Dallas, TX.

►SECTION 4 - LONGVIEW/TYLER/TEXARKANA

- No Report

Representative **Brandy German** - 903/509-1552

►SECTION 5—EL PASO - No Report

Representative **David Ornelas** - 915/594-5730

►SECTION 6—MIDLAND/ODESSA - No Report

►SECTION 7—ABILENE/SAN ANGELO - No Report

►SECTION 8—AUSTIN

Representative **Richard W. Eason** 512/261-6222, ext 14, Reason@LakewayMUD.org

The Central Texas Section of WEAT began the 2004-2005 campaign with a bang on September 21. Former Chairman of the Texas Commission on Environmental Quality, **Robert J. (Bob) Huston** spoke to our membership, and discussed issues related to water supply planning and water quality, including reuse and environmental flows.

The meeting was sponsored by: **Lloyd Gosselink Blevins Rochelle & Townsend, P.C.** and **Metro Quip, Inc.**

The Central Texas Section will meet November 16, 2004 at 6:00 p.m. at the Joe C. Thompson Center - University of Texas at Austin, to hear CDM Project Manager **Danny Shannon** discuss issues related to indirect potable reuse. The meeting is open to anyone interested in water and wastewater issues. The evening will include a social gathering followed by a buffet dinner.

Central Texas Section Officers are:

- ♦ President - **David Briggs** 512/972-0075, briggscdm@cdm.com
- ♦ President - Elect - **Steve Coonan** 512/346-1100 scoonan@apaienv.com

- ♦ Vice-President - **Karol Mehnard** 512/452-5905 karol.mehnard@m-e.com
- ♦ Treasurer - **Heather Harris** 512/457-7748 hharris@CH2M.com
- ♦ Secretary - **Brad Castleberry** 512/322-5856 bcastleberry@lglawfirm.com
- ♦ Young Professionals Rep. - **Heather Harris** 512/453-2468, hharris@CH2M.com
- ♦ Section Rep.- **Richard Eason** 512/261-6222 reason@lakewaymud.org
- ♦ Past President - **Raj Bhattarai** 512/444-3188 raj.bhattarai@ci.austin.tx.us

►SECTION 9-HOUSTON/GALVESTON

Representative **Dr. Bob Hill** - 281/367-3556

The Houston/Galveston Sections awarded two \$1,000 scholarships to Lamar University and the University of Houston for this fall semester. The UH recipient is **Lakshmanan Divagar**. He is currently working on a project on arsenic removal from water using innovative coagulants. The Lamar University recipient is **Mr. Rosario Napoli**.

We have several exciting meetings lined up for the upcoming year. On November 18th, we continue the emphasis on the **City of Houston**, with **Mr. Michael Marcotte**. Mr. Marcotte is the new Director of Public Works and Engineering. Mr. Marcotte was previously the Chief Engineer for the District of Columbia Water and Sewer Authority. We all look forward to hear Mr. Marcotte's ideas and perspective on Houston's initiatives and challenges.

Other scheduled luncheon meetings include:

- ♦ January 20, 2005 -**Mr. Roger Whitney, P.E.**, Senior Assistant Director, Wastewater Operations, **City of Houston**
- ♦ March 17, 2005-**Mr. Michael D. Talbotte, P.E.**, Director, **Harris County Flood Control**

Please visit the section's web site at www.weat.org/southeast for the latest news from the Houston/Galveston Section and contact information for the officers, planned activities, and past newsletters.

►SECTION 10-BEAUMONT/PORT ARTHUR - No Report

Representative **Karin Warren** - 409/785-3006

►SECTION 11-SAN ANTONIO

Representative-**Don Vandertulip**-210-375-9000 dvandertulip@pape-dawson.com

The South Central Texas Chapter held its last meeting on September 30, 2004. **Mr. Roland Gutierrez** with the **San Antonio Water System (SAWS)** gave a presentation on the ongoing efforts to implement and integrate the master development plan for Mitchell Lake Wetlands and Wildlife Refuge. SAWS has entered into a contract with the National Audubon Society to operate the facility for up to 50 years. Mitchell Lake began as an irrigation lake at the turn of the century, collecting raw sewage and storm water to supply farmland. In the early 1930's when the Rilling Road Treatment Plant was built, waste sludge was discharged to the lake. Clean-up began in the late 1970's to remove accumulated sludge. Water levels are now maintained with recycled water from the Leon Creek WRC and

Continued on page 16. See Section Activities.

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TEXAS REUSE RULES REVISIONS PROCESS - 2004

Roger E. Schenk, Jr.; CDM

Don Vandertulip, Pape-Dawson Engineers

Alan H. Plummer, Alan Plummer Associates, Inc.

INTRODUCTION

Chapter 210 (Title 30 Texas Administrative Code (30 TAC) §210), *Use of Reclaimed Water*, regulations are enforced and administered by the Texas Commission on Environmental Quality (TCEQ) and have regulated direct reuse applications since February 1997. State of Texas 30 TAC §210-Subchapter E, relating to industrial reuse, was recently revised by TCEQ in December 2002; however, that rule revision did not provide changes to the domestic, reclaimed water rules contained in 30 TAC §210-Subchapters A-D.

In response to this regulatory framework and because of a common desire to improve the operational, technical, and administrative aspects of the existing Chapter 210 rules, a sub-committee of the Texas-Section-American Water Works Association-Water Conservation and Reuse Division was formed to review and identify potential rule revisions and make appropriate recommendations. This Reuse Rules Review sub-committee (the Committee) is comprised of engineers, attorneys, operators, scientists, and other reuse professionals that believe that Chapter 210 rule revisions are now appropriate. The scope for this process was to conduct a careful review of 30 TAC §210 (Subchapters A-D) for domestic uses, but excludes direct consideration of Subchapter E (industrial uses).

This paper presents the basis for Chapter 210 rule changes proposed by this Committee. While some changes may be specific to the State of Texas, the Committee is utilizing their member participation in the USEPA *Guidelines for Water Reuse* update process to focus on recent technological changes and emerging contaminants of concern. Definition of appropriate reclaimed water quality levels for specific reuse applications are also being technically reviewed as compared with the quality levels adopted by other States and to provide consistency with those levels identified in the 2004 USEPA Guidelines. Our Committee's work has been presented to the TCEQ to determine which issues they might support, issues found unfavorable, and issues considered as higher priority relative to other issues. In general, the TCEQ is supportive of most of our Committee's recommendations and they encourage our efforts to improve the Chapter 210 rules. The Committee has tentatively set December 2004 as a target date for initiating the rule revision process with TCEQ.

RULE REVISION PROCESS

When the Committee initially convened on *May 8, 2003*, among the many goals cited by the participants, the primary goals that were voiced are summarized as follows:

- Make revisions compatible with Regional Water Planning initiative
- Emphasize Reclaimed Water as a Resource
- Refine Rule Definitions of Reclaimed Water

- Review §210 Reclaimed Water Quality Standards
- Develop White Paper of Technical Recommendations

The scope of this process includes careful review of 30 TAC §210 (Subchapters A-D) and the focus of this effort is on direct reuse applications and does not directly consider water rights issues.

All of the rule comments were reviewed and discussed before the Committee for technical merit, consensual support, and their probability to survive the rule revision process. Four sub-committees were established to technically evaluate the concerns voiced during this meeting. All four sub-committees met independently after the May 2003 meeting and presented their proposed rule revision suggestions to the full Committee at the *July 17, 2003* meeting. Updated summaries of each sub-committee's efforts are presented in sections below:

Several Committee members suggested the rule revision process needs prioritization of those rules considered not satisfying their intent versus those rules that might simply need enhancement. The Committee felt this might best be accomplished by developing a White Paper to present major issues and concerns for presentation to TCEQ. This approach also includes development of rule guidance recommendations designed to work with the proposed Chapter 210 rules. The initial "working draft" White Paper was finished by *August 29, 2003*. The primary rule recommendations generated from the four sub-committees and summarized by the White Paper are discussed below.

DEFINITIONS SUB-COMMITTEE RECOMMENDATIONS

The sub-committee reviewed the 30 TAC §210 rules (210 Rules) and provided the following recommended revisions:

- Existing rules definitions for which revisions should be considered.
- Terms used in existing rules, but not defined.
- Terms that will be used in proposed rules.
- Whether or not to roll in the existing Subchapter E (industrial) definitions.
- The sub-committee presented proposed recommendations to the Committee and from those discussions, revised the recommendations as stated below.

Existing Definitions

In this section, existing Chapter 210 definitions are cited in the first paragraph and the *italicized* paragraph(s) that follow presents alternative definitions or provisions under consideration by the Committee.

Beneficial use - An economic use of wastewater in accordance with the purposes, applicable requirements, and quality

criteria of this chapter, and which takes the place of potable and/or raw water that could otherwise be needed from another source. The use of reclaimed water in a quantity either less than or the economically optimal amount may be considered a beneficial use as long as it does not constitute a nuisance.

With the emphasis of the 210 Rules placed on water quality, defining “beneficial use” in this context seems inconsistent with Chapter 297 (Water Rights). This term is rarely used in the 210 Rule so there appears to be little value added by redefining it. Note that “raw water”, used in the beneficial use definition, is not defined in 210 or in 297. The last sentence of this definition relates economic use to ensuring that water is not applied in such a way to cause a nuisance.

Nuisance - Any distribution, storage, or use of reclaimed water, in such concentration and of such duration that is or may tend to be injurious to or which adversely affects human health or welfare, animal life, vegetation, or property, or which interferes with the normal use and enjoyment of animal life, vegetation, or property.

The group recommends removing references to nuisance or leaving the term in the rules, but not defining it. At minimum, nuisance should be defined as reclaimed water use “other than in accordance with these rules.”

Permit or permitted—A written document issued by the commission or executive director in accordance with Chapter 305 of this title which, by its conditions, may authorize the permittee to construct, install, modify, or operate, in accordance with stated limitations, a specified facility for waste discharge, including a wastewater discharge permit.

The group recommends a definition clarification to distinguish between a 210.5 Authorization and a TPDES permit.

Producer - A person or entity that produces reclaimed water by treating domestic wastewater or municipal wastewater, in accordance with a permit or other authorization of the Agency, to meet the quality criteria established in this chapter.

Provider - A person or entity that distributes reclaimed water to a user(s) of reclaimed water. For purposes of this chapter, the reclaimed water provider may also be a reclaimed water producer.

Generally, the group noted that there is uncertainty in the rules regarding the responsibilities between production, provision, and use, especially when all three are the same entity. Clarification of these responsibilities is recommended through the revision process.

Terms Used in Rules that should be Defined

In this section, existing Chapter 210 terms that are used, yet are undefined, are cited first, followed by discussion of the term, and then presents alternative definitions under consideration by the Committee.

Discharge - This term is used more than fifteen times, yet it is defined only for purposes of Subchapter E (Industrial Reuse). *The group recommends a definition of discharge in Subchapter A (Definitions) with clarification that a reclaimed water discharge would not necessarily cause pollution.*

Effluent - This term is used 10 or more times. *The group recommends a definition be developed for “effluent” that directly applies to domestic reclaimed water systems.*

Irrigation - The group suggests defining the term irrigation

to distinguish between spray and surface applications. *The group recommends refinement of this definition with respect to spray irrigation and drip irrigation applications.*

Potable Water - The group recommends that this term be defined consistently with Chapter 290. *The group recommends that Potable Water be defined by reference to Chapter 290.*

Reclaimed Water Transfers - The group recommends that this term be refined. *The group considers this term as ambiguous such that “does it pertain to distribution or sale?”*

Reuse - The group recommends that, rather than defining reuse herein, that we delete reference to the term. *In context, however, the Chapter 210 rules say that “Reuse of untreated wastewater is prohibited.” Alternatively, we propose changing this reference to state discharge “Use of untreated wastewater is prohibited under this chapter.”*

DESIGN CRITERIA SUB-COMMITTEE RECOMMENDATIONS

The Design Criteria recommendations below are intended to provide guidance for future rule revisions and resolution.

Imminent Rule Change Recommendations

Reclaimed Water, as a primary water resource, should generally be considered by the TCEQ more as a water distribution system than as wastewater collection system. Items included under this category include:

Issue a Reclaimed Water General Permit (or Reuse Authorization) based on zero discharge facilities that follow the compliance requirements and water quality standards included in Chapter 210, instead of first being required to obtain a TPDES Permit. This could require the development of a third type of permit, as an alternative to the TPDES and Texas Land Application Program (TLAP) permits. The proposed Reclaimed Water General Permit would include the same public notification requirements and procedures to notify TCEQ of treatment facility design. This Reclaimed Water General Permit would regulate “satellite” reuse facilities.

Adopt a “Lost Water Report” approach, as potable water systems use, instead of filing an “Unauthorized Discharge Report.” We believe that tracking reclaimed water use is important to maintain management control of the utility system. Given the high quality of reclaimed water, we believe an administrative report to account for the water volume lost is appropriate instead of creating potential enforcement action for an unintended release.

Base System Water Quality monitoring on the system’s flow as potable water system sampling is determined. We believe that increased monitoring with larger distribution systems are appropriate and that a model already exists in Chapter 290 to create the basis for monitoring requirements.

Recommend a Residual Disinfectant concentration directly in Chapter 210. We suggest that a “trace” of residual chlorine be defined consistent with the potable water standard of 0.2 mg/l total chlorine.

Consider applying the primary State water quality standard of 200 colony-forming units/100 ml for fecal coliform as the criterion to judge water quality once reclaimed water has been delivered to open storage systems. Consider defining an open storage time period required to change the definition from “reclaimed water” to “surface water.”

Locations of initial holding ponds should be allowed within the 100-year floodplain as defined by the FEMA. The Committee recommends allowing ponds up to the 25-year (or 10-year) flood elevation; while on-channel (floodway) ponds would not be authorized under Chapter 210 definitions. For golf course ponds that are often located along floodplains, ponds should be allowed to be located where they are functional and aesthetic. The water quality of most open ponds is more often negatively impacted by natural environment contributions than from the quality of reclaimed water used to augment the pond's volume.

Rule Enhancement Recommendations

Generally, Chapter 210 should require preparation and submittal of an Engineering Report sealed by a Texas Licensed Professional Engineer as is required under Chapter 290 and Chapter 317 rules. Items that should be addressed include:

- System Pressure and Capacity
- Distribution System Design Criteria
- System Storage Requirements and Operational Criteria
- Liner criteria (for earthen storage ponds).
- Water Balance
- Pipe Material Selection and Identification Criteria
- Proposed Sampling Locations and Frequency
- Cross Connection Control Measures
- Signage Protocols

Design Criteria Recommendations – The following design criteria recommendations in Chapter 210 include:

- Storage tank and distribution system sampling ports design.
- Air Gap definition specified by Chapter 210 for discharge into a storage tank, pond, and sanitary sewer systems.
- Separation distances defined in Chapter 210, both vertically and horizontally to potable and sewerage systems.
- Valve covers should be square, labeled as “Reclaimed Water “(or equal) and be purple in color.
- Connections for future customers should include a stub-out with blind-flanged valve and require a tapping valve.
- Irrigation applications by users should not allow overspray beyond a property line. Concurrently, allowing overspray of low areas on a property if the application rate does not create a discharge.
- Well separation distance from reclaimed water use should be set at a 50-foot radius based on the quality and the disinfectant residual of the reclaimed water (instead of by reference to Chapters 290 and 317).
- Color coding of pipe should be consistent. The group suggests definition of color coding and labeling to include wastewater treatment plant facilities.
- Add National Sanitation Foundation (NSF) to the listed agencies certifying pipe materials Subsection 210.25(e).

OPERATIONS & MAINTENANCE (O&M) / REPORTING SUB-COMMITTEE RECOMMENDATIONS

The sub-committee evaluated Chapter 210 from an O&M and reporting standpoint. The following proposed rule revisions and program guidance items are recommended:

System flushing allowance through direct piping into wastewater manholes stated in Chapter 210. This would remove irrel-

evant Chapter 290 and Universal Plumbing Code (UPC) rule references regarding cross connection controls to potable systems.

Reclaimed systems operate at a lower relative pressure (i.e. 5-10 psi below) than the prevailing static pressure of the potable water system provider, possibly considering this criterion as a recommended method of practice.

Monthly Reporting in a similar format as the Monthly Water Report for potable systems, instead of as releases on the same form as sanitary sewer overflows (SSO). A proposed Lost Water Report could account for reporting of “water lost,” total water delivered to the system, total metered water (to customers and outfalls), and “unaccounted-for-water.

Reporting of noncompliance acts of use, or discharge due to pond overflows or line breaks is vaguely defined. 5-day written reports are stated in TPDES permits and verbal 24-hour notifications are implied. A written procedure regarding noncompliance acts should be specifically stated in the rule or by guidance standard of practice.

Unauthorized discharges of reclaimed water from a pond system are addressed in 210.22 (e). For Type I quality reclaimed water, this procedure seems unwarranted as pond water will not likely degrade a stream's water quality that already contains Type I reclaimed water discharged from the POTW plant.

Require User reporting of repair activities and planned system modifications to Producer/Provider pertaining to the reclaimed water system. Some systems require this, through User Agreements, but not by 210 rules.

Consider applying the same standard to reclaimed water systems on a flow or capacity basis as is done with potable water systems regarding field sampling and monitoring requirements.

RECLAIMED WATER QUALITY SUB-COMMITTEE RECOMMENDATIONS

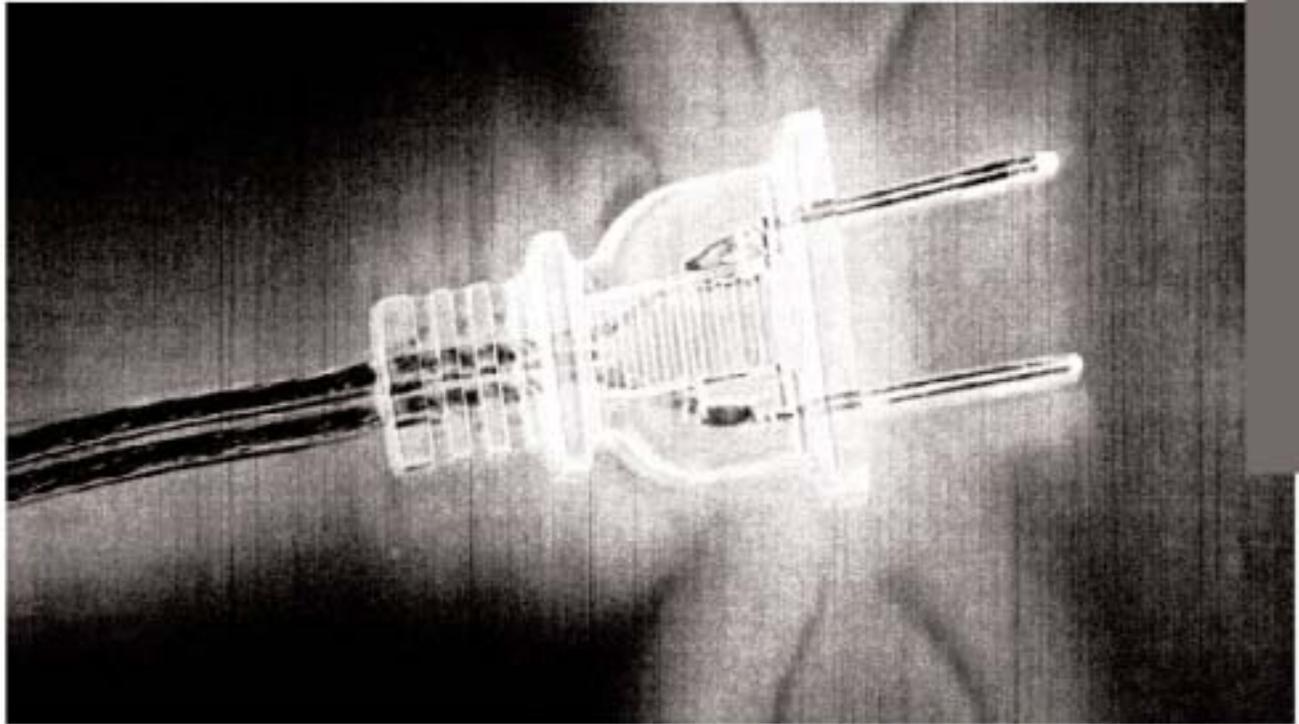
The water quality criteria applied to reclaimed water use significantly varies from one state to another in the U.S. USEPA has not established specific water quality criteria; however, the agency is about to update the EPA *Guidelines for Water Reuse*. The EPA Guidelines update will likely provide suggested water quality guidelines for reclaimed specific water reuse applications. As opportunities for reclaimed water use increases, additional attention is being given to ensure that water quality criteria is appropriate for protecting the general public's health and safety. The USEPA *Guidelines for Water Reuse* update expected in late 2004 may likely present suggested limits that are more stringent than the current Chapter 210 water quality standards. In this regard, it is important for the TCEQ to review and assess whether or not changes should be made to the current water quality criteria established in Chapter 210.

Proposed Review and Assessment

The Committee proposes that TCEQ help initiate an effort to review and assess the current reclaimed water quality standards. Of particular interest will be a review of the current standards' effectiveness regarding compliance and providing adequate public health and safety protection. This review will document incidents of problems related to use of reclaimed water and will involve an examination of research studies that address water

Continued on page16. See Reuse.

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RECYCLED WATER: A PRACTICAL GUIDE TO PLANNING AND IMPLEMENTATION

Steve Fletcher, San Antonio Water System

BACKGROUND

The San Antonio Water System (SAWS) has developed a delivery system to provide 35,000 acre-feet per year of Type I recycled water to municipal and private customers. By substituting 20 percent of SAWS demand on the Edwards Aquifer with recycled water for non-drinking uses, aquifer water can be preserved for drinking water and allow San Antonio a continued quality of life. Historically, San Antonio has used Edwards Aquifer water for their water use needs. The Aquifer is the city's sole source of drinking water. Compared to Edwards Aquifer water, SAWS' recycled water contains very similar levels of constituents with the exception of an increase level of nutrients and total dissolved solids.

The current uses for SAWS recycled water are irrigation, river augmentation, and cooling tower make-up. The quality of SAWS' recycled water depends on the effectiveness of treatment and the ability to maintain water quality in the distribution system. Challenges have been observed as each customer begins service. In order to provide the highest water quality product and customer service possible, SAWS has initiated an internal Recycled Water Team to address basic hydraulic pipe flow regimes, flushing procedures, desired total residual chlorine levels and reservoir storage strategies to prevent stagnation and nitrification.

CURRENT SYSTEM

The current piping route was determined by letters of interest, billing and well permit records, and the direction of future growth of the city. This system was built within a 5 year period, beginning in 1997, because of San Antonio's pending need to reduce dependency on our sole water source. Over 75 miles of transmission pipeline was built at a cost of \$125 million.

The Water Recycling Program identifies three categories of customers: 1) customers with an existing Edwards Aquifer well and thus a permit to pump Edwards Aquifer water, 2) existing potable water customers of SAWS with no Edwards Aquifer permit, and 3) new customers.

An Edwards Exchange Customer is a recycled water customer who exchanges Edwards Aquifer pumping withdrawal rights for recycled water, paying a rate of \$75 an acre foot for recycled water. Existing customers without well permits and new customers will pay SAWS a rate of approximately \$320 an acre foot for recycled water. These rates are comparable with the existing general class rate. However, recycled water customers do not have to pay the Water Supply Fee or the Edwards Aquifer Authority (EAA) Fee. As a result, recycled water is currently 40 % less expensive than potable water for cooling tower make-up and golf course irrigation, and 70% less expensive than landscape irrigation meter.

STATUS OF SYSTEM

The current status of the system is as follows:

Commitments/Allocations	
Stream maintenance	5,100 acre-feet/yr
Contracted and online	8,957 acre-feet/yr
Contracted but not online	4,081 acre-feet/yr
Contracts under negotiation	<u>1,470 acre-feet/yr</u>
	19,608 acre-feet/yr
Uncommitted and available to be sold	15,392 acre-feet/yr
Total	35,000 acre-feet/yr

The 5100 acre-feet/year allocated to stream maintenance is added to the San Antonio River and Salado Creek. This has improved the flow and aesthetics of the San Antonio River and aided in the removal of Salado Creek from TCEQ's 303d list as a result of increasing the dissolved oxygen levels.

The 8,957 acre-feet/year currently available to online customers has been underutilized because of two unusually wet years.

The 4,081 acre-feet per year that is contracted but not yet online, is the focus of the majority of the Recycled Water Team's energy and time. Activities include system design, installation, inspecting, back-flow prevention, dye testing, training, and soil testing.

Contracts currently being negotiated account for 1,470 acre-feet per year. Issues here include negotiating the amount of well rights to be transferred, system modeling and design, estimating off-site and onsite construction costs, and Conversion Benefits. The Conversion Benefit is money that SAWS initially made available to help prospective customers convert to recycled water.

That leaves 15,392 acre-feet per year to be actively marketed to the community by the marketing group. This is accomplished by sales calls, referrals, economic development prospects, and additional uses by existing recycled water customers.

LIMITING FACTOR AND TYPES OF CUSTOMERS

Although the system is designed for a capacity of 35,000 acre-feet, this will only be possible if SAWS can manage the system properly. One of the more critical parameters is the peak demand in July, our hottest month. The peak demand for both legs is as follows:

Leg	Peak Flow	Maximum Volume
Salado (Eastern Section)	17 MGD	13 AF
Leon (Western Section)	26 MGD	22 AF

SAWS has the following five types of customers based on how water is drawn from the system.

- 1) Irrigation customers with holding ponds or tanks that can vary the feed rate throughout the day. SAWS plans to install flow restriction devices on these lines in order to control rates, and therefore optimize peak flow management.
- 2) Irrigation customers with direct feed that draw during 8 PM to 10 AM,
- 3) Cooling towers customers with direct feed that draw continuously with a peak at 3 PM,
- 4) A combination of the above, and
- 5) River Augmentation that can vary the feed rate throughout the day.

CONSIDERATION OF MARKETING PEAK DEMAND

SAWS recently received a request from a prospect for a peak demand of 350 gpm and a volume of 60 acre-feet. This represents 1.9 % of the total peak demand, but only 0.27% of total volume of the Western Leg. Since the limiting factor in delivering the full 35,000 acre-feet is peak demand during July, SAWS is sensitive about the ratio of any one customer's peak demand to total volume.

This prospect determined they would need 350 gpm as the peak demand in July by adding 150 gpm for the cooling tower to 200 gpm for their direct irrigation application. Since the cooling tower will peak during the hottest part of a July day, and the direct irrigation will peak during a July night, SAWS questioned why they should be additive.

After discussing this issue with their design engineers, the cooling tower peak demand was decreased to 75 gpm under normal operating conditions, since 150 was a worst case that would occur only occasionally, if at all.

When a new turf is planted, it needs to be watered more than normal to become established. The irrigation designers were under the misconception that "watering in" of the new turf could occur anytime and as much as needed for the first year of growth. However, SAWS' policy on "watering in" new turf is to allow 3 weeks of unrestricted watering regardless if the water is potable or recycled. SAWS' Conservation Department has developed procedures to help customers in this process. Since normal irrigation hours are from 8 pm to 10 am and the establishment of new turf could be scheduled for the non-summer months, the two flows (75 gpm for cooling towers and 200 gpm for irrigation) would not be additive. A more accurate estimation would be the 200 gpm for irrigation added to whatever the cooling tower make-up would be on a July night.

In the process of working with this customer, their actual peak demand was decreased and their volume was increased, and the ratio was more acceptable. This is a good example of how working with the customer can optimize the design, improve the accuracy of the contract, and maximize the amount of water that can be sold.

EXPERIENCE WITH COOLING WATER

SAWS has experienced mixed results using recycled water as cooling tower make-up. The most critical issue is high phosphorus levels and variability. Phosphorus levels in recycled

water must be controlled below 2.5 ppm, and preferably below 2.0 ppm, before recycled water can compete against potable water for cooling tower make-up. When phosphorus is above 2.5 ppm, cycles of concentration must be reduced to prevent calcium phosphate scale from occurring in the chillers.

When cycles are reduced, the 40% savings using RW instead of potable water is negated because of the corresponding increase in make-up rates, blow-down rates, and chemical usage. If there are no savings, there is no economic incentive, and the prospect can't pay for his portion of the recycled water piping.

When phosphorus levels are less than 2.5 ppm, calcium phosphate deposition can be successfully controlled by lowering the pH and using deposit control agents specifically for phosphate. These polymers work well in suspending high levels of phosphates. Cycles of concentration range from 3.5 to 5, and water treatment chemical costs are from 10 to 50 % higher depending on the vendor. This cost increase is a result of increased service load and chemical usage.

SAWS is investigating the possibility of reducing phosphate levels by identifying and minimizing high phosphate producers to the treatment system, initiating a phosphate ban in laundry detergents, and/or adding ferrous sulfate. Ferrous sulfate, added for odor and corrosion control in the collection system, also reduces phosphates in the recycled water. As the odor/corrosion control effort expands, phosphate will also decrease.

Other areas of concern include microbiological control and yellow metal corrosion rate.

Initially, high levels of microbes were found in the system causing slim growth in irrigation systems. However, microbiological control has been improved since supplemental gaseous chlorine addition points were installed throughout the system. Microbiological levels have not been a problem in cooling towers.

We do not have enough experience and have not collected enough data to evaluate yellow metal corrosion rates. Yellow metal corrosion can be aggravated by elevated ammonia levels but can be control by increasing the amount of yellow metal corrosion inhibitors.

Although cooling tower customers will only account for 5 to 15 % of the total volume of recycled water delivered, they are important customers because they use a greater percentage of water in the winter than irrigation customers, and they use near normal amounts of water in wet periods. Irrigation customers, on the other hand, use almost no water during the winter or during wet periods. Cooling tower customers use a more consistent amount, keep the system moving, and reduce stagnant conditions.

FUTURE TRANSMISSION LINES

The current recycled water system is projected to deliver 22,000 acre-feet by 2009. In order to deliver the total capacity of 35,000 acre-feet, additional transmission lines must be built. A prospect list and map have been developed to determine the best alternatives. Issues to consider include using recycled water on the Edwards Aquifer Recharge Zone, making recycled water affordable for agricultural prospects, and competing with prospects that have their own wells.

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Section Activities. Continued from page 8.

the lake now supports a golf course and Visitor Center for Audubon Society members and guest.

WEAT Officers met on October 11, 2004.

►SECTION 12-CORPUS CHRISTI

Representative **Foster Crowell** - 361/857-Water.

The City of Corpus Christi was busy hosting the WEAT Safety Conference on Friday, Sept. 24, 2004. With the hard work of the WEAT Safety Committee Members and the City of Corpus Christi Wastewater staff, the conference was a huge success. The Safety Conference in Corpus Christi had 192 attendees, almost doubling WEAT's initial goal. Corpus Christi wishes to thank everyone that attended and all the exhibitors that participated.

Reuse. Continued from page 12.

quality standards relative to public health and safety considerations. Data should also be collected and analyzed to assess the effects of changes in the water quality criteria with respect to required treatment measures. A comprehensive review of standards applied by other states and USEPA guidelines should further be performed to gain beneficial information for determining if changes should be made in the current water quality standards. An assessment should also be made regarding whether monitoring and testing should be performed for constituents of interest (e.g., giardia, cryptosporidium, etc.) for which standards have not been established. The Committee has decided to not recommend reclaimed water quality standard changes during the imminent rule revision process that is scheduled for late 2004 until this research and evaluation has occurred.

WEAT SAFETY CONFERENCE

What a Conference!

The City of Corpus Christi hosted the 2nd WEAT Safety Conference on Friday, September 24, 2004. The Safety Conference was a huge success with 192 attendees, almost doubling WEAT's initial goal. This success was directly attributed to the hard work and dedication of the WEAT Safety

A big thank you to all those that attended the conference and all exhibitors who participated in the conference that made Corpus Christi's WEAT Safety Conference, one to remember.

Committee Members and the City of Corpus Christi Wastewater staff who all worked very hard in organizing and planning the event. The WEAT Conference included a variety of topics for the break-out sessions which included Chlorine Safety, First Aid/CPR, SCADA System, Confined Space Entry, Trenching and Shoring and TRA's Safety Program, as well Exhibitors. A big thank you to all those that attended the conference and all exhibitors who participated in the conference that made Corpus Christi's WEAT Safety Conference, one to remember.

MARC

News from the Manufacturers and Representatives Committee

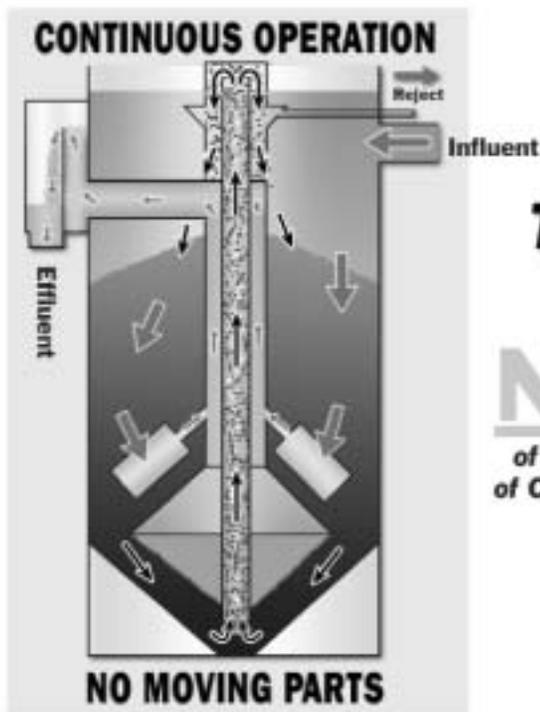
The first meeting of the Manufacturers and Representatives Committee (MARC) will be on December 2, 2004 in the office of Conservatek in Conroe, Texas. The purpose of the meeting will be to formalize the structure of the committee. In addition, planning will begin for the first seminar introducing new technology to the marketplace through the use of equipment or process.

The committee members include **Mr. Keith Williams** of Ashbrook Corporation, **Mr. Matt Madolora** of Premier Chemicals, **Mr. Sam Caillouet** of CF Engineered Equipment, **Mr. Scott Long** of Seepex, **Mr. Ron Culp** of Hartwell Environmental and **Mr. Brian Phenegar** of Environmental Improvements. Co-Chairs of MARC are **Mr. Ron Mayo** of Hydronics and **Ms. Nita Bailey** of Conservatek.

Advisors to MARC will be **Mr. Joe Lindeman** of Archer Western Contractors, **Mr. Foster Crowell** of the City of Corpus Christi, **Mr. Matthew Berg** of CH2M Hill and **Mr. Tom Weber** from the Texas Commission on Environmental Quality (TCEQ).

If you are interested in participating in the start-up of this new committee please contact **Ms. Nita Bailey** at 936-539-1747 or **Mr. Ron Mayo** at 972-387-3339.

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Dos Rios Water Recycling Center Earns EPA Award

Like winning the 'Super Bowl' for Achievement in wastewater treatment

San Antonio Water System is celebrating its Dos Rios Water Recycling Center winning First Place in the EPA's 2004 Clean Water Act Recognition Awards for Operations and maintenance. This award is the way that the EPA recognizes municipalities and industries for outstanding and innovative technological achievements in wastewater treatment and pollution abatement programs. In the wastewater treatment industry, it is generally considered to be the 'Super Bowl' for achievement. The Water Environment Federation presented the award to SAWS at their annual conference held in New Orleans.

Dos Rios' outstanding achievements include taking an average of 56.5 million gallons of sewage per day and treating it to produce high-quality water available for downstream flow and recycled water used for industry and landscaping. Most of the solids resulting from the treatment process are used at SAWS composting operation - one of the largest in the country. New real-time computerized monitoring equipment has improved efficiencies in keeping a constant watch on quality standards.

Dos Rios has demonstrated 100-percent compliance with national wastewater treatment requirements for more than ten years.

Innovative advances have produced new methods of vector and odor control. Dos Rios staff has eliminated the use of pesticides for vector control; instead natural control measures like Purple Martins and parasitic wasps are used. To improve odor control, SAWS staff has improved drying bed management with the use of polymers to speed drying times.

On the human side of the equation, extensive training improvements for personnel have been made as well as significant outreach work to the community.

"I am proud to say that the employees at San Antonio Water System's Water Recycling Centers are dedicated to their responsibilities and it is their commitment to our customers and the environment that have earned SAWS this distinguished recognition," said SAWS Board of Trustees Chairman James Mayor.

SAWS four major Water Recycling Centers serves 1.2 million wastewater customers in a 620 square mile service area. Dos Rios is the largest and newest of the four centers with a capacity of treating up to 125 million gallons of sewage per day.

More information on the award is available at www.epa.gov.



James Hanlon (left), EPA Director of Wastewater Management, presents the Clean Water Act Recognition Award to SAWS Dos Rios management and staff at the WEFTEC.04.

Mark Your Calendar for Texas Water 2005

Texas Water 2005 will be held April 5-8, 2005 at Moody Gardens in Galveston, Texas. Moody Gardens offers a unique venue where the Exhibit Hall is connected to the hotel. Texas Water is proud to announce that **Larry Soward**, TCEQ Commissioner, will be the keynote speaker at the Opening Session. Look for more information soon.



WEF AWARD NOMINATIONS FOR 2005

NATIONAL LEVEL

NOMINATION DEADLINE: MARCH 1, 2005

Texas is a BIG state with BIG talent. Let's brag a little bit and share our accomplishments with the rest of the country! Send us your letters of nomination. The Water Environment Association of Texas may submit nominees to the Water Environment Federation for the following categories:

HONORARY MEMBERSHIP to a person of acknowledged eminence in Federation objectives and activities

CHARLES ALVIN EMERSON MEDAL to the member whose contributions to the wastewater collection and treatment industry most deserve recognition

RICHARD S. ENGELBRECHT INTERNATIONAL ACTIVITIES SERVICE AWARD to the member who demonstrated sustained and ongoing contributions over a period of five years or more toward furthering and improving Federation activities in the international field

OUTSTANDING ACHIEVEMENT IN WATER QUALITY IMPROVEMENT AWARD to the water quality improvement program that best demonstrates significant, lasting, and measurable excellence in water quality improvement or in prevention of water quality degradation in a region, basin, or water body

INDUSTRIAL WATER QUALITY ACHIEVEMENT AWARD to the industrial corporation and/or its engineering firm that best demonstrates significant, lasting, and measurable excellence in water quality improvement or in prevention of water quality degradation by innovative design and operation of an industrial wastewater, pretreatment, or source prevention program

GEORGE J. SCHROEPFER MEDAL to the member professional engineer who has demonstrated excellence in conceiving and directing design of a wastewater facility project to achieve both cost effectiveness and environmental objectives

GORDON MASKEW FAIR MEDAL to the member university educator who has made documented worthy accomplishments in training and development of future engineers

PUBLIC EDUCATION AWARD to the person, member association, or any other who has made significant contribution to public awareness of water environment issues via public education programs

GEORGE BRADLEY GASCOIGNE MEDAL to the author(s) of a published article which presents the solution to an operational problem within a wastewater treatment plant

PHILIP F. MORGAN MEDAL to the member who has made valuable contributions to in-plant study and solution of an operational problem

THOMAS R. CAMP MEDAL to a member who demonstrates a unique application of basic research or fundamental principles through the design or development of a wastewater collection or treatment system

COLLECTION SYSTEM AWARD to an individual for contributions to the advancement of state of the art wastewater collection

HAZARDOUS WASTE MANAGEMENT AWARD to the member whose efforts have promoted quality technical and/or management performance in the field of Hazardous Waste Management

For further information and full criteria for these awards and/or to submit a nomination, please contact:

WEAT Awards Committee

Attn: Betty Mayo, Chair

Hydronics, Inc.

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Dallas, Texas 75240 Phone: 972-387-3339, FAX: 972-387-9399, E-Mail: hydronic@dallas.net

INTERGOVERNMENTAL AFFAIRS

By Rebecca Cobos, Intergovernmental Committee Chair

ON THE FEDERAL FRONT

CSO and SSO Report to Congress. On August 26, 2004, the U.S. Environmental Protection Agency (EPA) released its *Report to Congress on the Impacts and Control of Combined and Sanitary Sewer Overflows*. The second and final report that was developed in accordance with the Consolidated Appropriations Act for Fiscal Year 2001 finds that while there is evidence that combined sewer overflows and sanitary sewer overflows may cause or contribute to environmental and human health impacts, it is “difficult to establish a cause-and-effect relationship between” human illnesses or water quality impacts and overflows. The Report provides current estimates of the annual volumes of CSOs and SSOs, a modeled estimate of the number of illnesses caused each year by overflows, and an estimate of the resources that will be needed to further control overflows.

The report provides a major comprehensive assessment of sewer overflows. For CSOs, the Report cites continued progress since EPA’s 2001 Report to Congress, noting the percentage of CSO long-term control plans submitted to permitting authorities has increased from 34 to 59 percent and since issuance of the CSO Control Policy in 1994, CSO volume has dropped from over 1 trillion gallons per year to 850 billion gallons per year. While EPA’s estimate that there are between 23,000 and 75,000 SSOs each year is consistent with earlier estimates, the Agency’s new estimate for the total annual volume of SSOs, 3 to 10 billion gallons, is two orders of magnitude lower than the 311 billion gallon estimate used in drafting the 2001 SSO Rule proposal.

The Report makes no specific policy recommendations but does find that:

- The occurrence of CSOs and SSOs is widespread, containing pollutants that are harmful to the environment and human health, and there is evidence those CSOs and SSOs may cause or contribute to environmental and human health impacts.
- CSOs and many SSOs are caused by wet weather conditions and occur at the same time that stormwater and other nonpoint source pollutant loads are delivered to surface waters, making it difficult to directly attribute specific water quality and/or health impacts to CSOs and SSOs. A holistic approach should be used to address wet weather impacts, rather than focusing exclusively on sewer overflows.
- There are many existing structural and non-structural technologies that are well suited for CSO and SSO control. Implementation of emerging technologies and improved information management hold promise for increased effectiveness and efficiency.
- Costs associated with the technologies for controlling CSOs and SSOs are often substantial. Planning is needed to spread costs over time, as appropriate, in developing comprehensive, long-term programs.

For the full report check: http://cfpub.epa.gov/npdes/cso/cpolicy_report2004.cfm.

Effluent Guidelines. The EPA’s “Effluent Guidelines

Program Plan for 2004/2005” published in the Federal Register September 2, 2004 identifies Airport Deicing Operations and Drinking Water Supply and Treatment as two industries discharging “non-trivial” amounts of pollution for which EPA will develop effluent guidelines.

Water Collection Data-US General Accounting (GAO)

Report. To address a number of issues concerning data collection, the chairman of the Subcommittee on Water Resources and Environment asked GAO to determine certain key issues related to water quantity and quality collection. GAO’s most recent study found that officials in almost all of the federal and state agencies contacted agree that water quality data is falling short of its potential. GAO’s study concluded that designating a lead organization with sufficient authority to coordinate data collection could sufficiently address these problems. GAO recommended that Congress consider formally designating a lead organization for this purpose. To request more information, contact John B. Stephenson at (202) 512-3841 or stephen-sonj@gao.gov.

WHAT IS NEW AT TCEQ

Lab Accreditation. Senate Bill 934 added 3 types of unaccredited on-site/in-house laboratories from which the commission may accept data. These include on-site or in-house laboratories that:

- are located in another state and accredited or periodically inspected by the state
- performs the work for another company with a unit located on the same site
- performs work without compensation for a governmental agency or charitable organization if the laboratory is periodically inspected by the commission

Lab Accreditation Timetable

Aug 2004	Apply to EPA	Chapters 1&2	NELAC	2003
Aug 2004	Auditor training	Chapters 3,4,5	NELAC	2002
Nov 2004	EPA on-site audit	Chapter 6	NELAC	
Mar 2005	EPA approval			
May 2005	Accept applications			

For more information contact Steve Stubbs, TECQ at (512) 239-6343, sstubbs@tceq.state.tx.us

TCEQ Enforcement Process Review. At its work session scheduled Oct. 15, 2004, TCEQ will review recommendations to the agency’s enforcement process. Further discussion among commissioners will occur on November 1, November 15 and December 17, 2004. Elements requiring a statutory change, in other words a legislative initiative, would likely be implemented in December 2005. A change to existing rules normally requires a year to complete. However, this process can be expedited so that a rule change could be made in approximately six months. Policy and guidance documents and operational changes will vary from one month to several months depending on several factors.

TCEQ Regulatory Process. Recent changes within TCEQ

affecting the rule development process require up front work on rules to include concept paper generation. Additional requirements will allow for greater interaction among Stakeholders.

Report Finds Texas Waterways Not Significantly Impacted. TCEQ has released a report on the results of the enforcement phase of the Clear Stream Initiative. Twenty-four TCEQ investigators visited 316 rock-mining sites in 62 counties checking for compliance with state and federal regulatory standards. However, the vast majority of the operating sites inspected had little or no impacts to Texas's waterways. Of the 72 operational violations, only 19 directly impacted environmental conditions. Inspectors also issued 132 administrative violations, which generally related to paperwork. The full text of the report is available on TCEQ web site: www.tceq.state.tx.us.

2004 Texas Water Monitoring Congress

Approximately 250 individuals representing 83 organizations attended the Congress whose purpose was to offer participants an opportunity to discuss issues, network with colleagues, share successes and bring back new ideas to their own program. Papers presented covered surface water monitoring, data management, GIS application, and other topics of interest which are posted at www.TxWMC.org

This is a summary of a paper given by Jill D. Csekitz at TCEQ. Since June 2001, TCEQ has continuously monitored water quality parameters in real-time, including dissolved oxygen (DO), pH, temperature, conductivity, chlorophyll, and turbidity in the Bosque and Leon watersheds. Program costs have been considered and costs can now be projected onto other watersheds. One time startup costs range from \$25,100 for basic parameters to \$84,000 for basic plus expanded parameters. Annual operation costs for basic parameters is \$48,515 while basic plus expanded is \$65,865.

TCEQ Monitoring Stations are located at:

- Walnut Creek, Austin
- Green Creek, Claiborne
- North Bosque, Clifton
- Leon River, Gatesville
- Resley Creek, Dublin
- Lake Austin, Austin
- Lake Austin, Austin
- Caddo Lake, Jefferson

TCEQ has considered that continuous data analysis may be suitable for assessment of regulatory use-support purposes if data meet the following requirements:

- A data record must be 90% complete from deployment to retrieval.
- Missing data can be interpolated for calculating the 24 hour average if 90% of record is complete.
- Data collected after deployment in the first hour for YSI and Hydrolab instruments, and first 3 hours for Greenspan instruments are not included as part of a complete data record. This is meant to allow the instrument time to stabilize and collect representative ambient measurements.
- Only data records with "Excellent" and "Good" post calibration results are suitable for regulatory purposes.

For data analysis check <http://www.tceq.state.tx.us/water/quality/data/wqm/index.html>.

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WERF WORDS

By Leonard E. Ripley, Ph.D., P.E.



The September column explained how WERF solicits input from subscribers, and prioritizes research funding. In the latest survey of subscriber research needs, 46% of the participants rated two broad areas as top priorities: biosolids management and disposal; and SSOs, CMOM, I/I, wet weather & stormwater. So what's the result of all this input and prioritization?

The 2003/2004 Long-Range Research Plan and its latest refinement, 2004 Programs in Progress, help to focus the Research Foundation's efforts in ten categories: stormwater; wet weather collection & treatment; collection systems; treatment plant efficiency; nutrients, organics, & micropollutants; protecting human health; surface water quality; ecosystem health & contaminants of concern; biosolids & residuals; and water reuse. The long-range plan is a living document, with the next five-year plan to be released in early 2005.

Spotlight on Biosolids & Residuals Research

WERF has dedicated a significant portion of its research budget to the biosolids area, with 32 completed projects to assist wastewater professionals. Some examples include: *Polymer Characterization and Control in Biosolids Management* (dating back to 1991), *Biosolids Management: Assessment of Innovative Processes*; *Estimating Plant-Available Nitrogen in Biosolids*; *Manual of Good Practice for Biosolids*; *Development of a Cost Determination Protocol for Use in*

Benchmarking Biosolids Management Programs, and Analytical Method for Endocrine Disruptors in Sewage Sludge.

Project reports and research summaries of these completed studies are available from WERF.

Another 18 projects are underway, including: *Obtaining Pathogen Equivalency for Class A Biosolids through Storage and Air Drying*; *A Dynamic Model to Assess Microbial Health Risks Associated with Beneficial Uses of Biosolids (Phase II)*; *Biosolids: Understanding Public Perception and Participation*; *Mechanics of Conditioning, Thickening and Dewatering*; and *Effect of Biosolids Properties on Membrane Bioreactors (MBRs) and Solids Processing.*

Future projects will examine fecal and pathogen regrowth after anaerobic digestion and centrifugation, as well as the presence and fate of estrogenic compounds/activity during municipal sludge stabilization and dewatering.

**** Don't Forget: WERF Interactive Web Seminar ****
Collection Systems and Wet Weather Management
December 8 2:00-4:00 EST see: www.werf.org

In the next issue:

- *Focus on Nutrients, Organics, & Micropollutants*
- *New research projects for 2005*

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All Things YP

By Matthew Madolora



WEFTEC; a Launching Pad for YPs

A wise man once told me, "You don't volunteer to actively participate in WEAT...you are volunteered to participate." (You know how you sometimes laugh when you think someone just made a joke. Well, my chuckles still linger mockingly in my head, even as I write this article.)

My initiation into WEAT occurred more than 5 years ago, merely as a side note to joining WEF through my company as an exhibitor at WEFTEC. Since that time, I have become more active in WEAT, participating in various committees and contributing the occasional idea that may fall out of my head. As a result, my perspective of the value of WEFTEC and WEAT has taken many turns and I hope my experience will encourage other YPs to join or become more active.

Initially, I viewed WEFTEC solely as a marketing tool, a vehicle through which I could disseminate the virtues of my company's personnel, products and innovations to the masses. While this marketing perspective remains, WEFTEC has further come to symbolize opportunity, a launching pad if you will, for ideas, innovators, trendsetters...leaders. What I mean by this is that my perspective of WEFTEC goes beyond simple corporate promotion, and extends to all who take the initiative to affect change in the water/wastewater industry.

I find it unfortunate that several of my YP peers are unable to attend WEFTEC, because I believe WEFTEC can be a valuable stepping-stone to career development. The vast array of information, innovation and technology presented at WEFTEC is unmatched by any other forum in the world. Opportunities abound for joining eager and uninhibited young minds to bright new ideas waiting to be plucked from obscurity. YPs who attend WEFTEC may awaken to opportunities within their own current organization, another industry-related organization, or even within WEF or WEAT.

Personally, I take the time to venture through the exhibit halls and technical sessions to learn about "what's new", in water, wastewater and environmental regulations and how industry professionals are attempting to cope with the changes through design, new product technologies, or even ideological changes in treatment which can be construed as "thinking outside the box." I believe that it is not enough to merely attend WEFTEC; one must be active in investigation and discovery, and further, be prepared to utilize what one finds. As part of the "next generation" of professionals in the wastewater industry, I find it imperative that my YP peers and I carry the "what's new" out into the field as we develop the knowledge and respect afforded by many of our mentors in WEF, WEAT and/or our respective organizations. With the sheer volume of products, technologies and information all in one place, WEFTEC is the perfect launching pad for YPs.

"Volunteering" for various committees and participating in many events sponsored by WEF and WEAT has opened the door for me to make a difference in the water environment industry...time will tell. In the meantime, I'll enjoy the ride, and the great people, and the friends I've met along the way.

Want to be involved in the development of the Young Professionals Session at Texas Water 2005? The WEAT YPs need your ideas!

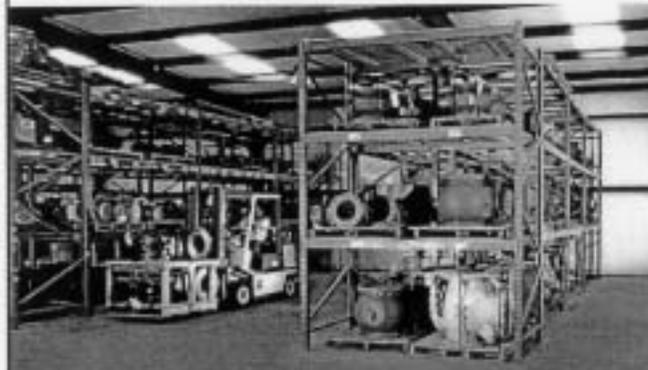
Please submit your thoughts for possible topics and/or presenters for the YP Technical Session to be held at Texas Water 2005 to
Becky Guthrie or Heather Harris at Rebecca.Guthrie@cityofdenton.com or hharris@ch2m.com.

Remember that each presentation will be limited to a 30-minute time slot, which should include time for questions and answers.

Please help the Young Professionals learn as much as they can.
Submit your ideas today!

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Texas Makes Showing in Ops Challenge

TRA CReWSers Win Third Place Overall in Division I, Austin Dillo Express Take Tenth

by Debbie Bronson

New Orleans—WEAT sent two Texas teams to compete in the national operations challenge competition at WEFTEC.04 on Oct 3 and 4.

The Texas teams competed with more than 200 of the best and brightest wastewater treatment professionals in the world.

Operations Challenge is a unique, fast-paced skills competition for wastewater operations and maintenance professionals. Now in its 17th year, Operations Challenge is a “Wastewater Olympics” that honors the skill and professionalism of wastewater treatment plant operators. Thirty-four teams from across North America competed in this year’s event at WEFTEC.04.

The teams trained for months leading up to this national event, many having worked their way up from in-plant and regional competitions.

Operations Challenge teams are judged on speed and accuracy in five events – maintenance, laboratory analysis, collection systems, process control and safety – that represent different aspects of a wastewater professional’s job. At treatment facilities across the U.S., these same individuals protect public health and the environment by cleaning the wastewater generated in homes, businesses and factories.

In Division I, the Trinity River Authority’s operations challenge team, the CReWSers, took first place in process control, pump maintenance and laboratory. The CReWSers took second in the safety event and eighth in collections repair for a third-place win overall.

Also in Division I, the city of Austin’s operation challenge team, the Dillo Express, finished tenth overall.

The TRA CReWSers were disappointed with the third place win after taking first place in three of the five operations challenge events.

The CReWSers’ second place win in the safety event was the result of an error that could not be undone. The team dropped a meter in the manhole where it could not be retrieved, resulting in two penalties, one for dropping the meter and another for failing to pick it up. Even so, the CReWSers finished less than four points behind the first place team, approximately 36 seconds in raw time.

The CReWSers were brought down by a devastating error during the collections event. The collections event consists of a repair to a damaged section of an eight-inch pipe. The damaged

section is removed; a new piece is cut to fit and inserted into the damaged pipe. The event requires incredible physical power and is completed at a very fast pace. Errors are inevitable and can be fateful.

The CReWSers cut the new piece of pipe at an angle on both ends making it impossible to fit in the existing pipe. The team quickly attempted to remedy the error by re-cutting one side of the existing pipe to make room for the lop-sided section. Too late, they realized that the new cut was still not enough to fit the angled section. The team had no choice but to make a second cut, which resulted in a raw time of three minutes and three

seconds, more than twice the time of the winning team.

Ironically, the collections event is the CReWSers strongest event. Last year, the team set a national record which is yet to be broken.

Despite the third-place win overall, a closer look at the competition scores speaks to the tremendous abilities of the CReWSers operations challenge team. The team managed decisive wins in the

events in which they took first place. In the pen and paper process control event, the team scored better than 25 points more than the second place team. In the laboratory event, they finished more than seven points ahead and in maintenance, more than three points ahead of the second-place competitors.

In the days following the national competition, the CReWSers’ team members and others have analyzed the team’s collections event performance at length, looking for a solution.

The CReWSers have a history of successfully analyzing and correcting deficiencies. Look to this long-time Texas team to remain strong competitors at the national level for years to come.

Texas is in the unique position of having two Division I Operations Challenge teams. The city of Austin has sent the Dillo Express to compete in Division I at the national level for the past two years. Austin has made a good showing at the national level for ten years; first in Division II with the Austin Blues and now as the Dillo Express in Division I. Given the extremely competitive environment in the national competition, this is no small feat. Although the Dillo Express has been overshadowed in recent years by the CReWSers, their efforts should not be overlooked. A team with this much tenacity might just surprise us in the future.



TRA CReWSers won third place overall in the national operations challenge competition at WEFTEC.04. Seen here from left to right are John Hart, WEF Operations Challenge Committee Chair, Dale Burrow, CReWSers Team Captain, Jake Burwell, CReWSers Team Coach, Troy Pratt, future member of the CReWSer’s team, Lynn Oprhan, WEF’s incoming President, David Smith, CReWSers team member, David Brown, CReWSer’s Team member and Steve Price, CReWSer’s team member.

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- Emissions from Composting Facilities and Emissions from Biosolids Processing and Land Application
- Emissions from Manufacturing and Industrial Facilities
- Regulatory, Air Quality Permitting, and Policy Issues
- Odor-Complaint Response, Community Involvement, and Community Relations
- Emissions Capture, Cover, and Ventilation
- Operations and Maintenance Issues Associated with Wastewater Treatment Plant Odor Containment
- Wet Chemical Scrubbing and other Chemical Treatment Alternatives
- Carbon Adsorption and other Physical Treatment Systems
- Biological Treatment Systems or other Innovative Control Technologies
- Ventilation Controls for Sewers and Tunnels under Positive Pressure

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- Technical Content
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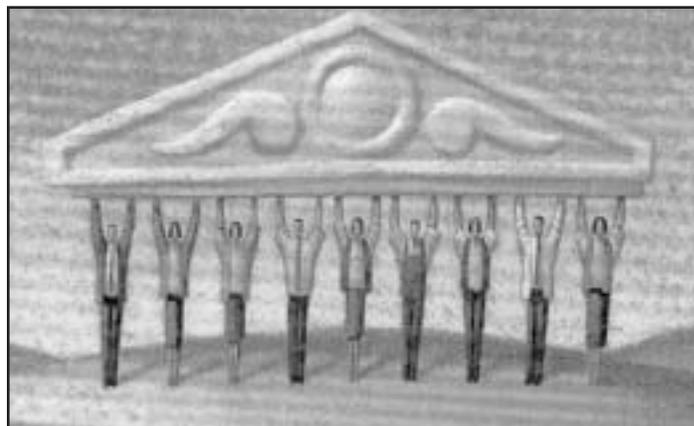
Abstract Submittal Form available at
<http://WWW.WEAT.ORG>.

WEF Director's Report

By Ron L. Mayo, Betty Jordan,
Director, Carolyn Ahrens-Wieland,
Immediate Past Director



WEFTEC.04 was a busy time for WEF Directors/Delegates. WEF has undergone a number of structural changes. The traditional director's role has changed significantly. The fiduciary responsibilities have been transferred to the Board of Trustees, leaving the directors to function primarily in a strategic planning mode. Directors are now officially members of The House of Delegates yet at the Member Association level retain the title "Director." Relative to their strategic planning role, at WEFTEC.04 a full day planning session was held to identify directions for WEF. Strategy groups met on the following topics: WEF and MA relationships including education and collaboration on seminars, WEF and MA memberships, regulatory and legislative issues and initiatives, and WEF's global presence. The next step is to finalize the reports from the strategy session and incorporate the strategy session issues into WEF's Strategic Plan. More will be reported as the strategic plans become more defined.



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TEXAS SJWP WINNER FROM NORTH TEXAS

The prestigious 2004 Texas State Stockholm Junior Water Prize (SJWP) was awarded on April 28th, 2004 to a team of students from the North Texas area. The competition is open to the TAWWA/WEAT first place winners from each International Science and Engineering Fair (ISEF) regional competition in Texas. The TAWWA/WEAT regional winners are selected from all projects aimed at improving the quality of life through improvement of water quality, water resource management, water protection, and water or wastewater treatment.

This year's state competition saw eight regional first place winners vying for the state crown. This year's competition was again a "paper contest". The winners were judged based on a



Mary Curtis, seen here in center, won third place with her project "Let the Sunshine In." Seen with Mary are David Weaver, Plant Manager for the GBRA on the left, and Curtis Davis, Chief Operator at the GBRA Victoria Plant, right.

one-page abstract of their project. Each year the projects become more competitive. As a result, the contest was very close and resulted in a tie at the third place level.

First place was claimed by a team of seniors, Ms. Allie Boone and Ms. Jessica Mooney, from Maypearl High School in Maypearl, Texas. Ms. Boone and Ms. Mooney, high school seniors, presented their research project titled "Biosolids: Wave of the Future". Their project was a four-year study of the impact of beneficial reuse of biosolids on plant growth and it's potential to affect runoff. As first place winners, they received a \$250 prize and travel expenses to Denver, Colorado, June 10-12th, to represent the State of Texas at the U. S. National Stockholm Junior Water Prize Competition.

Second place was won by Mr. Vivek Patel, a student at North Mesquite High School in Mesquite, Texas. Mr. Patel's project was "Water Purification with UV Rays". He received a \$100 prize.

Allie Boone, Jessica Mooney and Vivek Patel were awarded their prizes at the May meeting of the North Texas Section of WEAT. They, and other science fair winners from the Dallas/Fort Worth area, displayed their projects and discussed their research with the WEAT members prior to the business meeting. Ms. Boone and Ms. Mooney also gave the highlights of their research in a short presentation during the business

meeting.

Third place was won by Ms. Mary Curtis, a senior at Memorial High School in Victoria, Texas with the project "Let the Sunshine In". Ms. Curtis recently graduated from Memorial High School as Summa Cum Laude in a class of 835 students. She will attend Brigham Young University in the fall majoring in Dietetics.

Tying for third place was Ms. Lisa Lindemann, a sophomore at Temple High School in Temple, Texas. Lisa was a guest at the May 13th meeting of the Central Texas Section of the AWWA in Killeen. She discussed her science fair project, "Factors Affecting Storm Water Runoff", and accepted her third place award. Her mother and grandfather attended the meeting as well. Ms. Lindemann and each of the other SJWP winners received awards commemorating their accomplishment.

The winners of the 2004 competition were determined by a panel of well-known water professionals from across the state. Each of these individuals has been involved with science fair activities for some time. They represent different facets of the water environment as well as different geographical areas. A special thanks is due all of the judges for the 2004 SJWP Competition:

- Naomi Azulai, Lockwood, Andrews & Newnam
- Raj Bhattarai, City of Austin
- Mary Evans, City of Tyler
- Cande Hurn, City of Lubbock
- Dennis Laskowski, SAWS
- Megan Miller, City of Waco
- Judy Musgrove, City of Austin
- Jennifer Nations, City of College Station

Trooper and Jami have a son!



Congratulations to Trooper and Jami Smith on the birth of a baby boy! Parker Cole was born on November 2, 2004 weight 7lbs 13oz. Jami and Parker are both doing fine.

Trooper Smith, P.E. is an engineer at Freese and Nichols, Inc., Dallas office. He is Membership & Directory for the North Texas Section WEAT. He is a second lieutenant in the Army, 111th Engineering Battalion, training at Fort Hood, Texas for deployment to Iraq.

WEF's Annual Conference and Exhibition Attracts Over 16,000 Attendees

WEFTEC®.04, the Water Environment Federation's 77th Annual Technical Conference and Exhibition, drew an attendance of 16,262 last week at the Ernest N. Morial Convention Center in New Orleans, Louisiana. Held October 2-6, WEFTEC.04 featured 833 companies, covered 201,665 net square feet of sold floor space and offered water quality professionals the latest in water quality research, technology and services.

"WEF understands that the highest priority of water quality professionals is the protection of our most valuable resource - water," said WEF Executive Director Bill Bertera. "WEFTEC's mission is to provide the water quality community with the necessary tools for managing this finite resource on a regional, national and international basis." Attendees created their own learning experience by choosing from a wide array of educational opportunities including: 95 technical sessions and 23 workshops, a sprawling exhibition floor, seven facility tours, and special events including WEF Films - a festival featuring three independent films highlighting global water needs.

Conference highlights included a well-attended Opening General Session on Monday, October 4, where the theme of "Water is Water" pervaded. Then WEF President Lawrence P. Jaworski and keynote speaker Dr. Peter Gleick (President & Co-Founder of the Pacific Institute, Oakland, CA) both deliv-

ered remarks about the importance of taking responsibility for water issues on a local, national and global basis. In addition, the program featured a special check presentation to Water for People, an international humanitarian non-profit organization for \$25,000; remarks by 2004-2005 WEF President Lynn Orphan; a presentation on watersheds by 2004 Stockholm Water Prize winner Professor William Mitsch (Ohio State University); and recognition of the 2004 Stockholm Junior Water Prize winners.

The following day, as part of the "WEF Celebration of Excellence", Jaworski ceremoniously "passed the gavel" of Federation leadership to Orphan, only the third woman to hold the post of President since the Federation's 1928 inception. Also inducted were the 2004-2005 WEF Officers: President-Elect J. Michael Read, Vice President Mohamed Dahab and Treasurer Michael Godfrey. The ceremony culminated with the presentation of over 25 awards in recognition of the outstanding achievements of the most talented and dedicated professionals in the water quality community.

Networking and professional opportunities for water professionals, students and young professionals were also available at WEFTEC.04. Over 1,600 international attendees visited the Global Center where conference exhibitors also had the oppor-

Continued on page 32. See WEFTEC.04.

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Five Students Receive Bob Derrington Scholarships

WEAT is extremely proud to announce the students who have been chosen to receive the Bob Derrington Scholarship awarded at the August 19, 2004 meeting of the V. M. Ehlers Foundation, Inc. The scholarships are open to students who are the sons or daughters of WEAT members. Each student received a \$1,000 scholarship with \$ 361.00 added money donated by the W.T."Doc" Ballard Memorial Endowment. They are: Abha Bhattarai, daughter of Raj Bhattarai; Gary Burton IV and Miranda Burton, son and daughter of Gary Burton III; Kathleen Eason, daughter of Richard Eason, Ben Jenkins, son of Stephen Jenkins. The Bob Derrington Scholarship is an endowment fund through the V.M. Ehlers Foundation. The foundation received 122 applications this year. Out of the total applicants, 103 received scholarships from over 30 endowments. Monies for the Bob Derrington scholarships come directly from the Texas Water Golf Tournament held each year at Texas Water.

ABHA BHATTARAI – Graduated from Connally High School in 2004. She served as the Editor in Chief of the *Connally Connection* and President of Connally Community Cougars. She was the 2004 Texas High School Journalist of the Year and the 2004 National High School Journalist Runner-up. She is currently a freshman at Northwestern University in Evanston, Illinois pursuing a degree in journalism and statistics, and writes a monthly column for the Classroom Edition of the Wall Street Journal: http://www.wsjclassroomedition.com/freshman_journal/ Abha is the daughter of Raj Bhattarai of Austin Water Utility, Austin, Texas.



GARY BURTON IV - Graduated from Henderson High School in 2000. He is currently a junior at TAU and attended Kilgore College in 2000-2002. Lee served as President Fellow of Christian Cowboys and is a member of the Rocky Mountain Elk Foundation. He is pursuing a degree in Animal Science. Gary (Lee) is the son of Gary Burton III of Burton Engineering in Tyler, Texas.



MIRANDA BURTON – Graduated from Henderson High School in 2003. She was salutatorian, 2 out of 230 students, President of NHS and received awards in basketball, volleyball, tennis and cross-country. She would like to work with children as a teacher, physical therapist or pediatric nurse practitioner. Miranda (Randi Beth) is the daughter of Gary Burton III of Burton Engineering in Tyler, Texas.

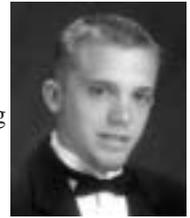


KATHLEEN EASON – Graduated from Lake Travis High School in 2003 in the top 7% of her class, ranking 19 out of 287. She has served as a team leader for numerous groups. She is a member of the Thespian Society (School Drama Club) and competed in UIL competitions receiving the "All Star Cast" Award. She is currently a freshman at Bard College in Annandale-on-Hudson, New York. Kathleen is the daughter of



Richard Eason of Lakeway Municipal Utility District.

BEN JENKINS – Graduated from Hebron High School in 2003. Ben is attending Oklahoma State University majoring in Mechanical Engineering. Ben was a varsity soccer player at Hebron and chose engineering to serve society and help the environment. Ben is the son of Stephen Jenkins of the City of Carrollton, Texas.



Congratulations to all the recipients. If you are interested in submitting an application for consideration, go to WEAT's website at www.weat.org for full information.

If you are interested in submitting an application, go to WEAT's website at www.weat.org .

WEFTEC.04. Continued from page 31.

tunity to meet with buyers and market experts from Asia and Eastern Europe through the assistance of the United States-Asia Environmental Partnership Exchange Program For Sustainable Growth (US-AEP) and Eurasia's American Partnership For Environmentally Sustainable Economies (ECOLINKS).

WEF's commitment to education was served through student activities including the Student Design Competition, Student Chapter Meeting, professional development workshops and the Stockholm Junior Water Prize "Walkway to the Future" display. In addition, the popular WEFTEach program celebrated its 10th year and launched Sewer Science, a \$250,000 interactive laboratory program, for New Orleans and Jefferson Parish high schools.

Rounding out the conference, the 17th annual Operations Challenge 2004 continued to honor the skills and professionalism of over 200 wastewater professionals competing on thirty-four teams from across North America. Winners included: Division I – Virginia Water Environment Association Fluid Dynamics (1st), Virginia Water Environment Association Team HRSD Bio-Force (2nd), Water Environment Association of Texas TRA CReWSers (3rd); Division II – New England Water Environment Association Seacoast Sewer Snakes (1st), Virginia Water Environment Association Virginia Beach Collectors (2nd) and Pacific Northwest Clean Water Association River Rangers (3rd).

Another exciting feature of WEFTEC.04 was the introduction of onsite sales reservations. Using ExpoCad® software/hardware, current exhibitors were able to view live floor space onsite and pre-select space for next year's conference. Through a series of organized appointments, a total of 546 companies reserved 169,400 of net square footage space for WEFTEC®.05 or 65% of the total expected exhibition. WEFTEC.05 is scheduled for October 29 through November 2, 2005 at the Washington Convention Center in Washington, DC. To keep up-to-date on all of the latest WEFTEC news, visit www.weftec.org.

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