



WRC NEWSLETTER

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WATER RESOURCES CENTER, TEXAS TECH UNIVERSITY, LUBBOCK, TX 79409
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WRC Participant in Field Screening

Lubbock NPDES Application: Phase I Completed

The City of Lubbock submitted its National Pollution Discharge Elimination System (NPDES) storm water permit application to the Environmental Protection Agency on April 7, 1992. The application was the result of a cooperative effort between the City of Lubbock, the firm of Arkhill, Smith and Cooper, Inc. of Lubbock (PSC), the firm of Alan Plummer and Associates, Inc. of Arlington, and the Texas Tech University Water Resources Center.

The application process is part of a nationwide program requiring NPDES permits for storm water discharges associated with industrial activity, discharges from large municipal separate storm sewer systems (serving populations of 250,000 or more) and discharges from medium separate storm sewer systems (serving populations of 100,000 or more, but less than 250,000). Lubbock falls into the "medium" category.

Various studies have shown that storm water from residential and commercial areas can contain a variety of pollutants including heavy metals, fecal coliforms,

pesticides, suspended solids, nutrients and floatables. Runoff from industrial facilities can contain additional pollutants depending on the nature of industrial activity such as material management, waste disposal practices and activities which disturb soils. Other studies have shown that many storm sewers also receive illicit discharges of untreated non-storm water discharges, spills, and large amounts of improperly disposed wastes, particularly used oils.

Removal of non-storm water discharges to storm sewers presents opportunities for dramatic improvements in the quality of storm water discharges.

The permit application requirements for discharges from a municipal separate storm sewer system (MS4) have been designed to facilitate development of site specific permit conditions. The

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NPDES Application

New Survey

Lubbock Water Table Studied

In 1988, the WRC published the results of a survey of the status of the groundwater in the Lubbock vicinity, including measurements of depth to groundwater at 80 wells. That study revealed a "ridge" of high water table elevation in the area along Quaker Avenue from Loop 289 north to Brownfield Highway, with rising groundwater levels in several zones in south and southwest Lubbock. Since that study, interest in the current groundwater levels has increased to leaking underground storage tank investigations, construction plans

for the East-West freeway, and consideration of possible utilization of the groundwater for irrigation of school and park lands. With the encouragement of the High Plains Underground Water District No. 1, the Texas Department of Transportation, and the City of Lubbock, the WRC set out to update this information.

During the months of November 1991 through February 1992 depths to groundwater have been measured at 135 wells scattered

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permit application requirements provide municipal applicants with an opportunity to propose appropriate management programs to control pollutants in discharges from their municipal systems. This increases flexibility to develop permit conditions and insures input from municipalities in developing appropriate controls.

Two-Part Application Process

A two-part application process for discharges has been established. Part 1 of the application includes general information regarding applicant. In the case of Lubbock, the City is applying as a co-permittee with Texas Tech University and the Lubbock District 5, Texas Department of Transportation, both being governmental entities with storm water facilities located within the City's MS4.

Additional Part 1 requirements include:

- ◊ Source identification information
- ◊ Discharge characterization
- ◊ Field screening analysis for illicit connections and illegal dumping (conducted during dry-weather conditions)
- ◊ Characterization plan identifying representative outfalls for further sampling in Part 2, and
- ◊ Description of existing management programs.

The Water Resources Center and the Environmental Science Laboratory participated in the portion of the study involving field screening and water quality analysis. Along with PSC personnel, TTU students, faculty and staff investigated over 250 outfalls scattered over the city, evaluating each location for the Part 1 field screening criteria. The WRC further contributed supporting information from numerous studies of storm water quantity and quality, municipal playa lakes, and the Canyon Lakes. Some of the studies dated back to the late 1960's, but nonetheless provided valuable background or baseline data.

The Part 1 application submittal consisted of three volumes:

- Vol. 1 - Permit Application
- Vol. 2 - Appendices (Ordinances, Maps, etc.)
- Vol. 3 - Field Screening Reports.

Upon review and approval of the sampling plan, Part 2 of the appli-

cation process may begin. It is anticipated that this phase of the process could be initiated by mid-May.

When asked about his view of the status of the project, Dr. Lloyd Urban, Director of the TTUWRC stated, "I have been extremely pleased with the results of Part 1. We found only a few instances of dry weather flows, and most of those were attributable to lawn watering, car washing and similar activities."

Concerning the outlook for Part 2, he expressed optimism for the final outcome. "We are several weeks ahead of the deadline for this part of the application process. Now with a little luck, we should be able to complete the installation of the necessary equipment at selected sampling station sites during the summer of 1992 and be ready to begin the wet weather sampling program by the time the expected fall rains begin."

Phase II Requirements

Part 2 of the application process expands the study to include:

- ◊ Detailed source identification
- ◊ Discharge characterization including quantitative data from 5-10 representative locations in EPA-approved sampling plans and estimates of seasonal pollutant loads and mean concentration for certain detected constituents
- ◊ Proposed management program to include means to accomplish structural and source control measures, detection and removal of illicit discharges, monitoring and controlling pollutants from municipal landfills and controlling pollutants from construction site runoff.

WRC Advisory Board - Fifth Annual Meeting

The eleven-member Advisory Board of the Texas Tech University Water Resources Center convened recently for its fifth annual meeting.

Mr. A. Wayne Wyatt presented an overview of water resources issues. Among the topics of discussion was the proposal to co-host a meeting with the Water District for the Texas Water Development Board and the Texas Water Commission. The meeting would include a reception sponsored by the Lubbock Chamber of Commerce, a business meeting followed by lunch, a bus tour through Littlefield and Hereford and ending in Amarillo. The tour would allow members to view irrigation projects in place, demonstration of efficient irrigation equipment, etc.

Among other business, Dean Mason Somerville, College of

Engineering, visited the board meeting to explain the budget situation for FY 92 as it relates to the WRC. Dr. Ernst Kiesling continued this discussion with his report on line item research management. He emphasized that the WRC has been exemplary in meeting the performance criteria for line items and that the WRC has had a tremendous positive impact on the area.

In other business, updates were presented on the WRC by Dr. Lloyd Urban and on the Environmental Science Laboratory by Dr. Tony Mollhagen. Overviews and updates were given on research funded by the WRC. Committee reports were presented on the Dan M. Wells Scholarship fund by Dr. Urban and the Long-Range Plan by Mr. Clayton Yeager.

Finally, three new members were chosen to fill vacancies to be

left by Dr. John Borrelli, Mr. James Parker and Mr. Clayton Yeager, whose terms expire at the conclusion of the Fall, 1992 Board meeting. They are the following:

- Dr. Raghu Narayan, Chairman, Department of Chemical Engineering, Texas Tech University

- Mr. J. Tom Ray, Planning and Environmental Division Manager, Brazos River Authority

- Mr. Bernard J. Gradel, Jr., Vice President, Hugo Reed and Associates, Inc.

Election of officers followed with Mr. Jim Bertram chosen as Chairman and Mr. William B. Hagood selected as Vice Chairman.

The next regularly scheduled meeting of the Advisory Board will be held in the fall, 1993.



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around the Lubbock vicinity. The number of available wells has increased markedly due to the installation of many monitoring wells as part of site investigations at underground storage tank sites around the city. Mr. Dan Seale of the HPUWCD measured depths to water at several dozen wells which are on that organization's inventory for inclusion in this study. Mr. Chennakrishna Gunda, a candidate for the master's degree in civil engineering, measured the rest of the wells. Dr. Ken Rainwater has guided the study, and technician Brad Thornhill assisted with the field work as needed.

Mr. Gunda will be submitting a report on the results of the study in

late May, 1992. Following his submittal, a more formal report is planned with the possible help of the HPUWCD and City of Lubbock. Preliminary examination of the results demonstrates that groundwater levels are still rising in the southwest part of Lubbock. The greatest increase since the 1988 report is in the vicinity of intersection 82nd and Quaker, where drainage improvements have included playa modification. The apparent rise in the water table at this location is more than 25 ft. The complete report should be available by late summer. For information, contact Dr. Rainwater.

George A. Whetstone Memorial Civil Engineering Scholarship

The George A. Whetstone Memorial Civil Engineering Scholarship was established in January 1991 in honor of "Doc" Whetstone, who served at Texas Tech University as a faculty member from 1946 to 1977 and as a research associate for the Water Resources Center from 1977 until his death in 1990.

Dr. Lloyd V. Urban, a long-time associate of Dr. Whetstone's, said, "George 'Doc' Whetstone will be long remembered by his former students and associates as truly an engineering educator. Although he believed strongly in the importance of learning and applying basic

technical fundamentals, he insisted that his students also gain an appreciation for other aspects of life, including the fine arts. He espoused principles of honesty, integrity, and professional conduct. As a result, there are hundreds of engineers practicing the profession today who have incorporated these principles into their practices and who are fortunate to have had the opportunity to have their lives touched by this remarkable man."

Scholarships will be available for Freshman through Senior students when the scholarship fund

is fully endowed. Until the scholarship fund reaches \$5,000.00, awards cannot be made.

Anyone wishing to make a donation should make their checks out to the Texas Tech Foundation, with a notation indicating that the contribution is for the Dr. Whetstone Civil Engineering Scholarship fund. Please address contributions to:

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