PROJECT NARRATIVE

Name of the Project: Mills County Nitrate Education and Remediation Program

Is This a New Project or Request for Continuation?: New

Geographic Area of the Project: Mills County

Name of Principal Investigator(s)*: Monty C. Dozier

County(s) and/or University Department(s), TAEX, or Unit: Department of Soil and Crop Sciences PU 790

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*Other investigators' address, phone, fax, e-mail may be listed on an attached sheet of paper.

Amount of Funding Requested: $9,000.00

Project Need, Description and Expected Outcomes

Discuss the situation and need for the project, describe the proposed project and expected outcomes/benefits, and suggest how the proposed project will involve the use of innovation and new technology.

The City of Mullin in Mills County relies strictly on private water wells for domestic water use. During this past year, nitrate concentrations above the maximum contaminate level of 10 mg/L in the school's water supply well raised concerns of possible high nitrate concentrations in all private water wells in the city and surrounding area. This concern was documented during a private water well screening program conducted in May 2002 by the Mills County Extension Office and the City of Mullin. During this private water well screening program, 79 water samples were screened for the presence of fecal coliform bacteria and for total nitrate concentrations. Of the 79 samples screened, 12 (15.2%) did have fecal coliform bacteria present and 36 had nitrate concentrations greater than 8 mg/L (ppm). It should be noted that 8 ppm limit is used for nitrates in this screening process as a safety precaution given the lab equipment is mobile and designed for field level screening.

Following the screening event, a tour of the city and the high nitrate concentration water wells revealed all high concentration water well concentrated inside the city limits. During a meeting with Stan Dykes, CEA-Ag Mills County, Richard Spinks, Mullin City Mayor, and

Monty Dozier, TCE water resources specialist, it was decided to submit project for consideration for a Soil and Water Conservation grant. The project will be three-fold. The project will place undersink reverse osmosis(RO) units to citizens of Mullin, locate and plug abandoned water wells, and provide follow-up water well screening after treatment system is in place.

The RO units will be purchased for the homeowners at a 75-25% cost share. Each homeowner will pay 25% of the cost of the units and 75% will come from this proposal. The Mills County 4-H Clubs and the City of Mullin will work with TCE staff to install the units as a community service project. Several of the residents of Mullin are on low or fixed incomes and limited in being able to afford large water treatment units. Stan Dykes will work with businesses in the area to secure acceptable RO units at a reasonable cost.

The city was scouted and interested local abandoned water well owners to identify where abandoned water wells in Mullin were located. These well's locations were identified and recorded using a handheld GPS unit. The local County Commissioner's precinct staff were updated on the situation and have agreed to assist with the well plugging effort. Dr. Bruce Lesikar was contacted to help coordinate this effort. Abandoned water wells will be disinfected prior to plugging and plugged according to Dr. Lesikar's recommendations. Reports related to the closing of each water well will be completed and filed with the TNRCC according to the TCE abandoned water well plugging guide.

Finally, the domestic supply water wells will be screened again after installation of the RO units at the RO unit outlet to determine nitrate concentrations of water used for human consumption. These results will be compared to the results from the water well screening held in May of 2002 to determine the impact on the in-home water quality of each participant. The number of abandoned water wells plugged will also be determined and their locations identified.

Specific Soil and Water Conservation Issues Addressed

Relative to the needs of current conservation projects (listed in Section III, or others), what concern(s) is/are addressed by this project?

water management and conservation

water security issues

Collaboration

What agencies, groups, organizations, or additional TCE/TAES disciplines are included in this project? List all collaborators and their function in the project.

TCE Mills County Staff and 4-H members - RO unit installation
TCE Ag Engineering - abandoned well plugging recommendations and supplies
City of Mullin - RO unit installation and abandoned well plugging manpower
Mills County Commissioners - equipment and manpower for well plugging program

Submitted by _____
(P.I. signature)

Approved for submission _____
(Unit Head signature)