

Application Form
2006-07 TWRI Mills Scholarship Program

Quantifying the Affects of Illicit Discharge Detection and Elimination on Bacteria-Impaired Urban Streams

1. Name of Student and TAMU Student ID Number:

Nick J. Russo III

2. Name and Contact Information for Faculty Advisor or Committee Chair.

Dr.'s Bruce Lesikar and Ronald Kaiser

3. Description of the student's proposed research, emphasizing how it will address a water resources-related concern (one page or less).

In 1998 Harris County, the City of Houston, TxDOT and the Harris County Flood Control District received a permit from the Environmental Protection Agency (EPA) to allow the discharge of storm water from the permittees' storm sewer system into waters of the United States. The permit, called a Municipal Separate Storm Sewer System, or MS4, Permit, required permittees to develop a program to locate and eliminate illicit discharges into the MS4. To date, these efforts have included "screening" large storm sewer outfalls for illicit discharges and site visits to commercial facilities which have been known to present a high potential for discharging pollutants into the MS4.

In 2003, the Houston-Galveston Area Council (HGAC) commissioned the Small Watershed Study on several small waterways which are impacted by high levels of bacteria. This study examined the number of illicit discharges to the stream and characterized the dry weather discharges. One of the streams in this study was Brickhouse Gully, a tributary of White Oak Bayou. The study identified 223 potential pollutant sources and 61 discharges in this stream. Eight discharges accounted for a very high percentage of the overall level of bacteria in the stream. The HGAC study did not attempt to eliminate the sources of the illicit discharges from each discharge point.

This study intends to build upon this earlier effort to locate and eliminate illicit discharges in Brickhouse Gully and Vogel Creek, both impaired tributaries of White Oak Bayou which are listed on the state's 303(d) list. Specifically this proposal will:

- 1) characterize baseline (pre-development) water quality conditions;
- 2) identify the specific location for each illicit discharge point;
- 3) identify the pollutant characteristics of each discharge point;
- 4) seek to identify the pollutant source for each discharge; and
- 5) seek to eliminate, to the extent practical, these illicit discharges.

By understanding the natural baseline for water quality, we can determine to what level water quality in impaired streams should be improved. In understanding the amount of effort needed to clean up waterways through illicit discharge detection and enforcement, agencies can better estimate budgetary and staffing requirements needed to improve water quality to a specified level.

4. Proposed use of funds resulting from this Scholarship (for example, to pay tuition, conduct research, etc.). One to two paragraphs or less.

I plan on using these funds to offset the cost of tuition.

5. Intended career path the student anticipates pursuing. (One to two paragraphs or less).

Currently, I am employed with Harris County, TX as a program manager within the storm water quality section of the Engineering Division-Permits group. I manage the construction site enforcement and post construction storm water quality aspects of our overall storm water quality program. I believe that water quantity and quality needs will become the forefront in the coming years, and I plan on completing the master's program while continuing to work full time.