

Illicit Discharge Detection and Elimination in Vermont Communities

In 2000, the Vermont Legislature required the Department of Environmental Conservation to implement a statewide program to promote IDDE, the detection and elimination of improper or illegal connections and discharges. The legislature's clear intent was to expand IDDE activities from those communities (all in the greater Burlington area) required to perform IDDE in compliance with EPA's Phase II Stormwater Rule to encompass all developed areas of Vermont.

Stone Environmental and the Friends of the Winooski River have conducted IDDE surveys in 15 Vermont communities not subject to MS4 permit requirements. With a 2008 Section 319 grant, they conducted comprehensive illicit discharge detection in Montpelier, Berlin, and Northfield in 2008 and 2009. Disconnections made in three stormwater systems discharging to the North Branch River in Montpelier reduced phosphorus loading by an estimated 13 kg per year. Stone has also conducted IDDE in Barre City, Waterbury, Richmond, Waitsfield, Moretown, and six towns in the Missisquoi River watershed. In the Missisquoi River watershed, Stone documented wastewater contamination of stormwater systems in North Troy, Richford, Enosburg Falls, and Swanton and undertook efforts to locate specific contaminant sources and implement repairs. Stone also completed a comprehensive IDDE project in the town of Brattleboro, Vermont. In total, Stone has assessed approximately 800 discharge points. A sanitary wastewater source was indicated at 31 discharge points. Other contamination sources included petroleum (15 locations), treated drinking water (16 locations), heated water, and road salt.

By combining drainage mapping, environmental investigative work, and municipal cooperation, Stone decreased phosphorus by an estimated 230 kg per year to



A scientist measures an outfall pipe found while searching for sources of illicit discharges into Vermont waterways.

Lake Champlain and reduced risks of pathogen exposure. A variety of problems identified through these efforts have been or are being addressed, including water leaks, pet waste dumping, trash dumping, and truck washing runoff.

To enhance field data collection opportunities, Stone built an electronic data collection application to be used on a handheld GPS unit. The electronic application used on waterproof GPS units was a superior solution over paper forms in a river environment. The application enabled field personnel to better locate known outfalls and to collect new locations. Users collect information on outfalls' physical properties and water quality data quickly and efficiently with the help of control features, such as drop down menus and validation rules. Entering attributes while location coordinates are logged by the GPS saved valuable office time, and spatial locations are automatically connected with the water quality data in the field