Data Driven

By Rebecca Kauten

Cost-effective ways to collect data from construction sites

In December 2009, the U.S. Environmental Protection Agency proposed effluent limitation guidelines to regulate the concentration of sediment suspended in surface water discharges from construction sites. The proposed numerical standard for effluent discharge concentrations of sediment initially was structured with the potential for regular water monitoring requirements and other qualitative analysis of storm water discharge from construction sites. As many know, however, this rule was nullified.

To date, no numerical standard exists as federal law for effluent discharge of sediment-laden water from an active construction site. Since the initial proposed federal rulemaking, many contractors, inspectors and local regulators have begun the search for appropriate technologies and tools for gathering water quality information from construction sites.

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Active participants in the IOWATER volunteer water monitoring program in Iowa are familiar with the use of acrylic transparency tubes as a means of assessing water clarity. Rather than measuring the amount of sediment or the turbidity, the transparency tube measures the inverse. By looking down a 60-cm tube, one waits to see a Secchi disc pattern as water drains from the bottom. No calibration is required. Users could either purchase multiple tubes or continually wash those in use—particularly if sampled water was heavily laden with sediment.

Research recently conducted by the University of Northern Iowa suggests manual transparency measurements may be the quickest and most affordable means of collecting basic water quality data from an active construction site. The measurement generates a baseline understanding of water clarity during weekly site inspections. Transparency tubes also may be used during triggered sampling events after storms as a means of rapidly collecting samples for basic understanding of site conditions; however, transparency tube measurements are not intended to serve as a 1:1 surrogate when comparing accuracy levels between turbidimeter measurements and transparency tube results. Should a higher level of accuracy be required for a sample on a given site, a meter or laboratory analysis should be considered to reinforce the initial data. As an alternative to no means of sampling at all, however, an acrylic transparency tube can serve as an appropriate, cost-effective tool for basic data collection from the field.

Because state and federal regulations may eventually require water quality monitoring for active construction sites, those preparing to measure clarity have an alternative to the expense of a digital turbidimeter. Before these regulations are in place, proactive measures can be taken to manage construction site runoff to protect water quality. By collecting data from active construction sites, contractors also are able to react and respond to water quality concerns that directly impact the local water resource on a project site in an effective, affordable manner. SWS

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