## Automated Weir-Based Structures for Stormwater Systems

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Norfolk Southern Railway has designed an automated weir as an innovative approach to general secondary containment and protecting storm water from fuel spills. The general secondary containment regulation, 40 CFR 112 - Oil Pollution Prevention, requires that a leak from aboveground piping must be contained to prevent migration to storm water discharges. This regulation has steered improvements in secondary containment due to the relationship between rail yards and stormwater. Nearly all rail yards throughout North America have drainage systems that convey storm water runoff from the yards to nearby streams, rivers, lakes, or municipal storm water systems. These storm water systems are designed to handle a wide range of flows from a wide range of storm events to safeguard against flooding around tracks and other important structures. In order to ensure compliance with 40 CFR 112, an automated weir-based structures was designed to provide an additional tool to prevent a fuel spill from leaving the site through the storm water system.

The weir is an underflow/overflow baffle box that includes a gate with an electrical actuator and an instrument to detect the presence of oil or diesel fuel. It includes an auto-dialer to notify the yard when a spill has been detected as well as the open or closed position of the gate. It is designed to hold spills behind the baffle wall at low flows or non-storm events, but still contain a spill and allow storm water to move through the box during high flow events. The structure is designed to automatically and remotely operate when there is a detection of oil or diesel fuel and can function 24 hours a day, 7 days a week without the need for manual monitoring.