

Maintaining Environmental Compliance during a Natural Disaster: CSX Transportation's Emergency Response to the Historic South Carolina Flooding

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From October 1, 2015 to October 5, 2015, Hurricane Joaquin and a stalled frontal system near the coast allowed significant tropical moisture to be directed inland over the state of South Carolina over a multi-day period resulting in historic rainfall amounts over much of the state. Many locations across the state recorded rainfall totals surpassing the 1,000-year rainfall frequency estimated by the National Oceanic and Atmospheric Administration (NOAA). Some areas of the state received over 2 feet of rainfall within a 5-day period. The subsequent flooding closed railroad lines, major highways, interstates, flooded homes, led to hundreds of water rescues and caused multiple deaths.

CSX Transportation, Inc. (CSXT) rail movement in South Carolina was severely impacted by the flooding. Over 50 locations across the Florence Division in central to eastern South Carolina reported having significant flood damage requiring repair. CSXT personnel with the support of Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) began assessing flood damage immediately after floodwaters began to recede. Damage assessments included inspecting the track embankment, bridges, and culverts for flood damage and potential environmental constraints required to make the necessary repairs and get the tracks back in service.

CSXTs commitment to environmental compliance prompted immediate communication with South Carolina Department of Health and Environmental Control and the U.S. Army Corps of Engineers (USACE) to obtain emergency authorizations for the repair efforts. Amec Foster Wheeler worked with CSXT to provide real-time regulatory updates and provide guidance as to what could be accomplished under the USACE Nationwide Permits. Although the work was ultimately authorized by Nationwide Permits, initial damage assessments and updates were provided to the regulatory community to ensure compliance while making emergency repairs to the infrastructure damaged by the flooding.

In addition to ensuring permit compliance during the emergency repairs, Amec Foster Wheeler performed the necessary hydrologic and hydraulic (H&H) modelling of the local watersheds at each of the damaged drainage structures to ensure compliance with Federal Emergency Management Agency (FEMA) Flood Maps. Amec Foster Wheeler looked at readily available materials to determine the proper repairs that resulted in an In-Kind replacement. This ensured no increased flood risks to nearby properties and prevented after the fact agency coordination after the repair was complete.

Due to CSXTs commitment to the customers and the South Carolina economy, all but one of the subdivisions (Eastover Subdivision) were back in operation within several days. The hardest hit Eastover Subdivision required approximately 1 month of repair work before coming back in service. This is a direct result of a combined effort from CSXT, its consultants, material suppliers, contractors and regulatory agencies- balancing assessment, repairs and compliance to re-establish railroad infrastructure.