

Community Engagement and Oil Spill Mass Estimates, Lessons from the Lynchburg, VA Crude Oil Derailment

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On Wednesday April 30, 2014, at approximately 1400 hours, the crew of CSX Transportation (CSXT) Train K08227 (a loaded crude oil train) reported that the train was stopped in emergency and that fire was coming from the middle of the train in downtown Lynchburg, VA. A total of 16 crude oil tank cars derailed. Three of the sixteen tank cars derailed into the James River, and one of these cars, CBTX41712 containing an estimated 29,916 gallons of Bakken crude oil, was breached. The derailment caused a fire, a local community evacuation, and made national news. The nature of the event required a rapid and effective response to protect and restore the community, the environment, and rail service.

Community engagement began with direct communication with firefighting crews and a decision to allow the fire to burn itself out. The evacuation of businesses and personnel from the immediate vicinity of the derailment during a crude oil train derailment is a recommended operating procedure and saves lives. Recent training initiatives by CSXT, including the Safety Train Energy Preparedness events with local emergency responders and planners, reinforces these best practices. Community engagement continued during the derailment with the direct engagement of local environmental groups, including the James Riverkeeper program. The concern of the group for the health of the James River coupled with their local knowledge bolstered CSXT's ability to assess river conditions related to the derailment. The James Riverkeepers were provided crude oil identification tools, health and safety information, toll-free oil reporting hotlines, and email addresses to report suspected oil observations.

Novel approaches to assess the volume of oil released to the environment, as well as fate and transport mechanisms, were utilized to characterize the magnitude of the release. Clean Water Act (CWA) and Oil Prevention Act (OPA) implications give these estimates greater environmental and regulatory significance when crude oil is released to the environment. Pool fire burn estimates, helicopter surveys, and sheen mass calculations supplemented traditional mass estimate techniques, providing a foundation for more advanced mass estimating techniques which can be used in more complex derailment and spill scenarios.