

**ANNUAL REPORT TO THE
JOINT SUBCOMMITTEE STUDYING MEASURES TO REDUCE
EMISSIONS FROM COAL-CARRYING RAILROAD CARS
PER SENATE RESOLUTION NO. 257**

Submitted by
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January 2015

In accordance with the 1997 Virginia Senate Joint Resolution No. 257, Norfolk Southern Corporation (Norfolk Southern) summarizes the efforts to identify and mitigate fugitive coal dust emissions from its rail corridors and facilities in the Commonwealth during the calendar year 2014. This report illustrates Norfolk Southern's compliance with the resolution and our commitment to protect the environment.

Summary of Key Accomplishments in 2014

- Norfolk Southern's Performance Monitoring Plan remains fully implemented.
- The Trackside Monitor in Altavista, VA has been upgraded with new sensors and continues to monitor trains headed for the Tidewater area, providing timely and valuable feedback to the mines participating in Norfolk Southern's coal dust reduction program.
- The 1-800 Dusting Report Line continues to be available to record any complaints from persons and businesses located in the rail corridors through which Norfolk Southern transports coal. In 2014 there were nine complaints logged from Virginia on the 1-800 line.
- Monitoring of particulate matter (PM₁₀) near Lamberts Point in Norfolk, VA continues to demonstrate compliance with DEQ ambient air quality standards.

2014 Review

Performance Monitoring Plan

The Performance Monitoring Plan is Norfolk Southern's strategy for monitoring the effectiveness of coal treatments by participating mines and for identifying additional mines that may be encouraged to participate in the dust control program. The major components of the Performance Monitoring Plan currently implemented are:

- Trackage Monitor – Altavista, VA
- 1-800 Dusting Report Line
- Community Air Quality Monitoring at Lamberts Point in Norfolk, VA

The multi-component approach established by Norfolk Southern is designed to provide continuous and unbiased feedback on the performance of its dust control program with the Trackage Monitors and 1-800 line.

Norfolk Southern will continue the Performance Monitoring Plan in 2015. Norfolk Southern will, as it has done in the past, work to expand mine participation should the Trackage Monitors or the 1-800 Dusting Report Line identify significant new sources. Norfolk Southern will also continue to participate as needed in the evaluation of advanced dust control agents for use in the coal dust treatment program.

Trackage Monitor - Altavista, VA

The Trackage Monitor at Altavista monitors both trains bound for export through Lamberts Point as well as those destined for regional domestic coal consumers. A continuing goal is to reduce the time taken to alert the mines of any evidence of treatment failure and request the mines to take prompt corrective measures, if necessary. To this end, Norfolk Southern is implementing an improved evaluation technique developed for use with existing Norfolk Southern trackage dust monitors. The first phase of this upgrade involved the installation of a new dust monitor and cellular communications. The second phase of the project, which involves the installation of a new dedicated Automated Equipment Identification system at the Trackage Monitor for improved train and consist data, was completed in 2013, and integrated in 2014.

In 2014, Norfolk Southern also began evaluating the use of an autonomous grading system to monitor fugitive dust emissions. The grading system will grade each mine's shipment (A to E) identifying the originating mine believed responsible for the dust signal as well as those shipments that appear to have no coal dust emissions. Sensor hardware upgrades to the Altavista Trackage Monitor have been completed. Norfolk Southern plans to begin testing of this grading system in 2015 and implement it once the testing is completed.

In 2014, the Altavista Trackage Monitor reported that 80% of all coal trains produced little measurable dust (<25 micrograms per cubic meter), which is the same as in 2013. The average of the dust signals produced by the remaining 20% of the trains was 61.8 micrograms per cubic meter which is below last year's value of 84.2 micrograms per cubic

meter and well below Norfolk Southern's performance target of 100 micrograms per cubic meter. Maintaining an average intensity of dusting events below or close to 100 micrograms per cubic meter is the most likely reason for the continued low number of 1-800 reports in the Altavista area and along line of road in the Commonwealth. These dust concentrations (micrograms per cubic meter) represent the peak signal recorded by a real-time monitor for an individual mine's shipment as it passes the monitor. These events, when averaged over a 24 hour period contribute, on average, <0.05 micrograms per cubic meter. Norfolk Southern continues monitoring performance to determine whether a series of excessive dusting events occurs.

1-800 Dusting Report Line

There were nine calls to the Virginia 1-800 Dusting Report Line in 2014, which were focused in the Norfolk area. Historically, the Virginia 1-800 Dusting Report Line has received few calls, with only one call in each of years, 2003, 2005, 2006, 2011, 2012, and 2013, and no calls in 2004 and 2007 through 2010. The data from the Trackage Monitor sites suggest little material change from 2008 to 2014 in the number of dusting trains and/or the magnitudes of the detected dust signals.

The combination of 1-800 reports, the details provided through the Trackage Monitor, and subsequent train tracking efforts provides a basis to encourage the mines to continue to participate in the dust mitigation program and improve existing efforts.

Lamberts Point Community Air Quality Monitoring

The Lamberts Point Community Monitoring Program monitors airborne particulates in the area surrounding the Lamberts Point coal pier in Norfolk. A PM₁₀ monitor is operated at the Virginia Initiative Project's waste water treatment facility adjacent to the pier. The DEQ ambient air quality standards were not exceeded at any time in 2014.

Anticipated 2015 Program Improvements

Norfolk Southern continues to fund improvements in the tools needed to execute its Performance Monitoring Plan. Norfolk Southern will continue to explore ways to improve the efficacy of the treatments and expand their applications to additional mines where warranted.

Norfolk Southern has purchased a new, more modern PM₁₀ monitor to replace the original monitor in the Lambert's Point area, which is scheduled for replacement in 2015. Norfolk Southern is working with the Virginia Department of Environmental Quality on the location and data requirements for the replacement monitor. In addition, Norfolk Southern, in consultation with VADEQ, will install a second monitor in the Lambert's Point area for enhanced monitoring.