

**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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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 2017. This report illustrates Norfolk Southern's compliance with the resolution and its commitment to protect the environment.

Summary of Key Accomplishments in 2017

- Norfolk Southern's Performance Monitoring Plan remains fully implemented.
- The Trackside Monitor in Altavista, VA 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. An upgraded grading system for characterizing emissions has been implemented to be consistent with the system used by other US railroads, and Norfolk Southern has made improvements which further help its identifying sources of excessively dusty events.
- 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. Norfolk Southern received three calls in 2017, and promptly responded to the complaints by tracing the source via improved Trackside Monitor.
- Monitoring of particulate matter (PM₁₀) near Lamberts Point in Norfolk, VA continues to demonstrate compliance with the National Ambient Air Quality Standard (NAAQS). Norfolk Southern continues its monitoring following its successful completion of a voluntary study in consultation with the Virginia Department of Environmental Quality.

2017 Review

Performance Monitoring Plan

The Performance Monitoring Plan in 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:

- Trackside Monitor – Altavista, VA
- 1-800 Dusting Reporting Line
- Community Air Quality Monitoring at Lambert's 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 Trackside Monitor and 1-800 line.

Norfolk Southern will continue the Performance Monitoring Plan in 2018. Norfolk Southern will, as it has done in the past, work to expand mine participation should the Trackside Monitors or the 1-800 Dusting Report Line identify significant new sources. Norfolk Southern will also continue to evaluate, as needed, advanced dust control agents for use in the coal dust treatment program.

Trackside Monitor – Altavista, VA

The Trackside Monitor at Altavista monitors both trains bound for export through Lamberts Point as well as those destined for regional domestic coal consumers. In 2016, a new autonomous grading system that is used by other US railroads has been implemented. This new grading system using integrated signals over the entire train passage better represents the total emissions from the coal load, compared to the one it replaced which was based on the maximum signal measured by the real-time aerosol monitor. In 2017, the system was further improved to capture the frequency of excessively dusty events by imposing brackets of integrated dust values for individual train passes. This metric helped Norfolk Southern to trace the sources of excessively dusty events, and to be prepared to readily identify any new sources.

1-800 Dusting Report Line

There were three calls to the Virginia 1-800 Dusting Report Line in 2017. Two calls from the same caller concerning generalized complaints about dust from Norfolk Southern's operations at Lamberts Point in Norfolk, VA. NS reviewed data from its PM₁₀ monitor at Lamberts Point during the time period of the complaints, and the data did not suggest any significant change PM₁₀ concentrations. One call was received regarding a dusty train pass observed by a caller in Suffolk, VA. Norfolk Southern promptly identified the mines associated

with the reported event via its Trackside Monitor and notified the mines regarding additional mitigation efforts.

Lambert's 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, VA using PM10 monitors. In 2016, Norfolk Southern completed a 12-month study in consultation with the DEQ to monitor the air quality. The study confirmed that the air quality near Lamberts Point does not exceed the national ambient air quality standards. Norfolk Southern continues to monitor PM₁₀ at Lamberts Point using a sampler located at the Hampton Roads Sanitation District's (HRSD) wastewater treatment facility adjacent to the pier according to EPA-prescribed particulate sampling schedule. The 24-hour National Ambient Air Quality Standard was not exceeded at any time in 2017.

Anticipated 2018 Program Improvements

Norfolk Southern continues to seek improvements in the tools needed to execute its Performance Monitoring Plan. Upon sensor hardware upgrade and implementation of new grading system, Norfolk Southern continues to improve upon analytical tools for Trackside Monitor for timely and valuable feedback.

Norfolk Southern will continue to explore ways to improve the efficiency of the treatments and expand their applications to additional mines by evaluating the continued monitoring of the performance of implemented treatment programs.