

**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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Environmental Protection Department
Roanoke, VA

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Summary of Key Accomplishments in 2004

- Norfolk Southern's Performance Monitoring Plan remains fully implemented
- The Trackside Monitors near Windsor, VA and Altavista, VA continue 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 2004 there were no complaints logged from Virginia.
- Monitoring of Total Suspended Particulate (TSP) and very fine particulate (PM-10) near Lamberts Point in Norfolk, VA continues to demonstrate compliance with DEQ ambient air quality standards.
- Norfolk Southern provides timely feedback to the coal mines served including the relative success or failure of their preventive measures to reduce fugitive emissions.
- Norfolk Southern continues to work with those mines that continue to be identified as not meeting the Performance Monitoring Plan's dust control standards by conducting periodic audits of the mines to ensure optimal performance.
- Norfolk Southern is using the "Six-Sigma" Continuous Improvement Process for evaluating our current mitigation program. Process mapping of our mitigation techniques and gauge evaluation studies were continued in 2004 to ensure the best use of the available dust prevention resources.
- Norfolk Southern, in its continuing effort to evaluate and improve when possible, conducted a set of experiments to optimize mitigation techniques for a problematic coal. These experiments were conducted on a train traveling from Grundy, VA to Norfolk, VA.

In accordance with the 1996 Virginia Senate Joint Resolution No. 257, Norfolk Southern (NS) summarizes the efforts to identify and mitigate fugitive coal dust emissions from its rail corridors and facilities in the Commonwealth during the calendar year 2004. This report illustrates Norfolk Southern's compliance with the resolution and our commitment to protect the environment.

2004 Review

Performance Monitoring Plan

The Performance Monitoring Plan is NS'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 -- Isle of Wight County
- Trackside Monitor -- Altavista, VA
- 1-800 Dusting Report Line
- Community Air Quality Monitoring at Lamberts Point in Norfolk, VA

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

As mentioned in its 2003 report, NS continued to work towards full automation of train tracking by providing improved access to NS's data base including the Coal Transportation Management System.

Norfolk Southern will continue the Performance Monitoring Plan in 2005. 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 participate in the evaluation of advanced dust control agents for use in the coal dust treatment program.

In October, 2004 Norfolk Southern in collaboration with a major coal shippers, conducted a set of experiments to improve the performance of a

frequently identified dust source. These experiments also served as a review of the existing treatment techniques and lead to improvements proposed for 2005.

Norfolk Southern anticipates similar experiments in 2005 to evaluate the treatment program as part of its commitment to maintaining effective dust control and continue our Six-Sigma objectives.

Trackside Monitor -- Isle of Wight County

The Trackside Monitor near Windsor, VA in Isle of Wight County, is designed to detect coal dust emissions from trains destined for Norfolk and NS's Lamberts Point Terminal. The Isle of Wight location was chosen since it permits monitoring of treated coal shipments after their exposure to more than 300 miles of transport. NS designed this monitor for two primary purposes:

- 1) to provide continuous monitoring of the effectiveness of dust mitigation treatments being performed by participating load-out facilities; and
- 2) to identify additional coals to be considered for inclusion in the coal car treatment program.

The Trackside Monitor collects data from both the northern and southern sides of the track. A continuing goal is to reduce the time taken to alert the mines of any evidence of treatment failure and thus to enable prompt corrective measures, if necessary.

NS develops a report for each dusting train that passes the Trackside Monitor. Each mine's shipment is graded (A – E) and a summary table identifies the originating mine believed responsible for the dust signal as well as those shipments that appear to have no coal dust emissions.

Trackside Monitor -- Altavista, VA

A second Trackside Monitor is deployed in 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. Thus, the data collected at this site has identified mines for

participation in NS's dust mitigation program that would not be detected by the Isle of Wight Trackage Monitor.

In 2004, the IOW and Altavista Trackage Monitors reported that ~78% and 64% respectively of the trains produced little measurable dust. Consequently the number of shipments exceeding the threshold for a grade of A or B decreased compared to last year. Also, the average magnitude of the exceedences continued to remain low: 144 micrograms per cubic meter in 2001; 68 micrograms per cubic meter in 2002, 69 micrograms per cubic meter in 2003 and 72 micrograms per cubic meter in 2004. Reducing the intensity of dusting events is the most likely reason for the continued low number of 1-800 reports.

1-800 Dusting Report Line

The total number of Virginia calls to the 1-800 Dusting Report Line dropped to 0 compared with 22 in 2000, 2 in 2001, 1 in 2002 and 1 in 2003. The data from the Trackage Monitor sites suggest a modest reduction in the number of dusting trains and a somewhat greater reduction in the magnitudes of the detected dust signals. A lack of Virginia calls to the 1-800 Dusting Report Line is significant considering export coal shipments from Lamberts Point Terminal (in Norfolk) grew 15.7 percent from 2003 to 2004.

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 participate in the dust mitigation program and improve existing efforts.

Lamberts Point Community Air Quality Monitoring

The Lamberts Point Community Monitoring Program monitors airborne particulate in the area surrounding the Lamberts Point coal pier in Norfolk. One Total Suspended Particulate (TSP) monitor and one monitor for very fine particulate (PM 10) are 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 2004. NS continues to operate a weather station at Lamberts Point to assure the

availability of information critical to the evaluation of TSP and PM-10 monitors.

Anticipated 2005 Program Improvements

NS continues to fund improvements in the tools needed to execute its Performance Monitoring Plan. In addition, NS will, through its “Six-Sigma” initiative, continue an industry-recognized quality improvement method for assessing the effectiveness of the NS Performance Monitoring Plan. Continued evaluation of the Trackside Monitoring is critical to maintaining confidence in the Performance Monitoring Plan by NS, its customers and the citizens of the commonwealth of Virginia.

Utilizing the results of its coal dust suppression treatment experiments conducted in October 2004, NS will continue to explore ways to improve the treatments and expand their applications to additional mines.