NATIONAL TRANSPORTATION SAFETY BOARD
Office of Research and Engineering
Materials Laboratory Division
Washington, D.C. 20594

June 11, 2014

MATERIALS LABORATORY FACTUAL REPORT Report No. 14-040

A. ACCIDENT INFORMATION

Place	:	New York, New York
Date	:	July 18, 2013
Vehicle	:	CSX freight train
NTSB No.	:	DCA13FR009
Investigator	:	Cy Gura, RPH-10

B. COMPONENTS EXAMINED

Three buckets containing ballast and subgrade samples.

C. DETAILS OF THE EXAMINATION

An overall view of the buckets containing ballast samples are shown in figure 1. The tops of the buckets were labeled “fouled ballast sample track 2 Hudson from between tie #N3 and N5 07-23-2013”, “clean ballast sample from between tracks 1 and 2 MP 10.05 Hudson 07-23-2013”, and “subgrade sample from track 2 MP 10.0 Hudson 07-23-2013”, respectively. Overall views of the bucket contents are shown in figures 2 and 3. The contents of the buckets were moist and had a musty odor when opened on June 10, 2014.

An arbitrary selection of rocks were removed from each of the buckets for additional examination. Close views of the selected specimens are shown in figures 4 through 6. The selected specimens were dried and photographed as shown in the upper images in figures 4 through 6. Then the specimens were cleaned using soapy water and a soft-bristle brush. The cleaned and dried specimens are shown in the lower images in figures 4 through 6.

The rocks from the bucket labeled “fouled ballast sample” were medium gray in color when received. As they dried, the color turned to a light gray as shown in the upper image in figure 4. The exterior of the samples had a gritty powder substance covering the surface. The lower portion of the sample in the bucket also contained more of the powdery substance mixed with fine particulates, and a pile of the powder and particulate substance is shown in the upper image in figure 4. During cleaning, the gray powdery substance washed away from the surfaces, leaving the underlying rocks as shown in the lower image in figure 4.

The rocks from the bucket labeled “clean ballast sample” were brown in color with gray-colored edges as shown in the upper image in figure 5. After cleaning, the rocks were mostly brown or dark green in color as shown in the lower image in figure 5.

The rocks from the bucket labeled “subgrade sample” were also brown in color as shown in the upper image in figure 6. The surfaces were covered in fine brown particles that fell off during handling. The brown-colored surface deposits mostly washed off during cleaning, and the resulting cleaned rocks from the subgrade sample are shown in the lower image in figure 6.

Matthew R. Fox
Senior Materials Engineer

Figure 1. Overall view of the buckets containing the ballast and subgrade samples as-received.

Figure 2. Overall view of the contents of the bucket labeled “fouled ballast sample”.

Figure 3. Overall views of the contents of the buckets labeled “clean ballast sample” (upper image) and “subgrade sample” (lower image).

Figure 4. View of rocks from the fouled ballast sample after being dried (upper image) and after cleaning and drying (lower image).

Figure 5. View of rocks from the clean ballast sample after being dried (upper image) and after cleaning and drying (lower image).

Figure 6. View of rocks from the subgrade sample after being dried (upper image) and after cleaning and drying (lower image).