DEPARTMENT OF DEFENSE

GENERAL SERVICES ADMINISTRATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

48 CFR Part 53

Federal Acquisition Regulation; Government Property Disposal; Forms

CFR Correction

In Title 48 of the Code of Federal Regulations, Chapter 1 (Parts 52 to 99), revised as of October 1, 2010, on page 527, in § 53.301–1423, the second Inventory Verification Survey form and the source note following it are removed.

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DEPARTMENT OF TRANSPORTATION

Office of the Secretary

49 CFR Part 40

Procedures for Transportation Workplace Drug and Alcohol Testing Programs

CFR Correction

In Title 49 of the Code of Federal Regulations, Parts 1 to 99, revised as of October 1, 2010, on page 572, In § 40.97, add paragraphs (a)(2)(i) and (ii) to read as follows; and on page 572, in the same section, redesignate paragraphs (d)(1), (2) and (3) as (e)(1), (2) and (3).

§ 40.97 What do laboratories report and how do they report it?

(a) * * *

(ii) Positive, with drug(s)/metabolite(s) noted, with numerical values for the drug(s) or drug metabolite(s).

(iii) Positive-dilute, with drug(s)/metabolite(s) noted, with numerical values for the drug(s) or drug...
I. Concrete Crossties Overview

A. Derailment in 2005 Near Home Valley, Washington

On April 3, 2005, a National Railroad Passenger Corporation (Amtrak) passenger train traveling at 60 miles per hour on the BNSF Railway Company’s (BNSF) line through the Columbia River Gorge (near Home Valley, Washington) derailed on a 3-degree curve. According to the National Transportation Safety Board (NTSB), 30 people sustained injuries. Property damage totaled about $854,000. See NTSB/RAB–06–03.

According to the NTSB, the accident was caused in part by excessive concrete crosstie abrasion, which allowed the outer rail to rotate outward and create a wide gage track condition. This accident illustrated the potential for track failure with subsequent derailment under conditions that might not be readily evident in a normal visual track inspection. Conditions giving rise to this risk may include concrete tie rail seat abrasion, track curvature, and operation of trains through curves at speeds leading to unbalance (which is more typical of passenger operations). Subsequently, this accident also called attention to the need for clearer and more appropriate requirements for concrete ties, in general. This final rule addresses this complex set of issues as further described below.

B. General Factual Background on Concrete Crossties

Traditionally, crossties have been made of wood, but due to improved continuous welded rail processes, elastic fastener technology, and concrete prestressing techniques, the use of concrete crossties is widespread and growing. On major railroads in the United States, concrete crossties make up an estimated 20 percent of all installed crossties. A major advantage of concrete crossties is that they transmit imposed wheel loads better than traditional wood crossties, although they are susceptible to stress from high-impact loads. Another advantage of concrete crossties over wood ties is that temperature change has little effect on concrete’s durability, and concrete ties often provide better resistance from track buckling.

There are, however, situations that can negatively impact a concrete crosstie’s effectiveness. For example, in wet climates, eccentric wheel loads and non-compliant track geometry can cause high-concentrated non-uniform dynamic loading, usually toward the field-side of the concrete rail base. This highly-concentrated non-uniform dynamic loading puts stress on the crosstie that can lead to the development of a failure. Additionally, repeated wheel loading rapidly accelerates rail seat deterioration where the padding material fails and the rail steel is in direct contact with the concrete. The use of automated technology can help inspectors ensure rail safety on track constructed of concrete crossties. While wood and concrete crossties differ structurally, they both must still support the track in compliance with the Federal Track Safety Standards (49 CFR part 213).

The use of concrete crossties in the railroad industry, either experimentally or under revenue service, dates back to 1893. The first railroad to use concrete crossties was the Philadelphia and Reading Company in Germantown, PA.1

In 1961, the Association of American Railroads (AAR)2 carried out comprehensive laboratory and field tests on prestressed concrete crosstie performance. Replacing timber crossties with concrete crossties on a one-to-one basis at 19/32-inch spacing proved acceptable based on engineering performance, but was uneconomical.

Increasing crosstie spacing from the conventional 20 inches to 30 inches increased the rail bending stress and the load that each crosstie transmitted to the ballast; however, the increased rail bending stress was within design limits. Further, by increasing the crosstie base to 12 inches, the pressure transmitted from crosstie to ballast section was the same as for timber crossties. Thus, by increasing the spacing of the crossties while maintaining rail, crosstie, and ballast stress at acceptable levels, the initial research showed that fewer concrete crossties than timber crossties could be used, making the application of concrete crossties a possible economical alternative to timber crossties.

Early research efforts in the 1960s and 1970s were focused on the strength characteristics of concrete crossties, i.e., bending at the top center and at the bottom of the crosstie under the rail seat or the rail-crosstie interface, and material optimization such as aggregate and prestressing tendons and concrete

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