

Date: Wed, 08 Nov 2000 13:08:33 -0700
From: Meredith Brown <racer@lanl.gov>
Subject: Blue Alert: Hand Truck Failure Creates Potential for Injury

Project Hanford Lessons Learned

Title: Blue Alert- Extension on Hand Truck Caused It to Fail

Date: October 9, 2000 Identifier: 2000-RL-HNF-0043

Lessons Learned Statement: Adding locally fabricated lifting fixtures to hand trucks that have not been properly engineered or approved by the manufacturer can cause premature failure. Several hand trucks are available that can provide added platform surface area. Some of them have manufacturer supplied tongue extensions.

Discussion of Activities: A worker was moving laundry bags with a hand truck when the tongue unexpectedly sheared off causing him to fall backwards. Fortunately, he was not injured. The broken hand truck was a standard "Magliner Handtruck, 500# Capacity" shown in the Web version of this lessons learned at <http://www.hanford.gov/lessons/sitell/1100/2000-43.htm>. A locally fabricated tongue extension was being used to provide additional surface area to haul laundry bags, also shown online.

Analysis: The fall could have caused a serious injury had the worker hit his head on the floor or landed on a sharp object. Although the total gross weight (probably less than 200 #) was well within the capability of the hand truck, the extension apparently increased the torque on the aluminum tongue beyond its design strength, causing it to break along the rear edge of the extension. Close inspection of the fracture line on the broken tongue showed evidence that a crack part way across the tongue may have existed for some time. Dirt and oxidation extended into the crack about four inches from one edge of the fracture.

Recommended Actions: Users should inspect hand trucks prior to use. A visual inspection of the tongue plate on this hand truck may have detected the developing crack. Hand truck users should anticipate the affect of failure of the hand truck when tilting a load backward. Positioning one foot back for support may help maintain balance should the hand truck break. Don't add "after-market" lifting fixtures or tongue extensions without manufacturer approval. They may add dynamic forces to the hand truck for which it was not designed.

Priority Descriptor: BLUE/Information

Work / Function: Material Handling

Hazard: Personal Injury / Exposure - Slips and Tripping

ISM Core Function: Analyze Hazards

Originator: Fluor Hanford, Inc. Submitted by John Bell

Contact: Project Hanford Lessons Learned Coordinator; (509) 373-7664

Reviewing Official: John Bickford

Keywords: Hand truck, tongue extension, fall

FOLLOW-UP ACTIONS: Information in this report is accurate to the best of our knowledge. As a means of measuring the effectiveness of this report, please contact the originator of significant action(s) taken as a result of this report or of any technical inaccuracies you find. Your feedback is appreciated.