Incident Report

Control Type: Motion Control Engineering
Machine Type: Schindler 400A MRL
Speed: N/A
Rise: 13 Stops
Hoistway Configuration: Simplex, MRL
Conditions: Repair Crew; wire rope lay bound in machine.

Description of Incident

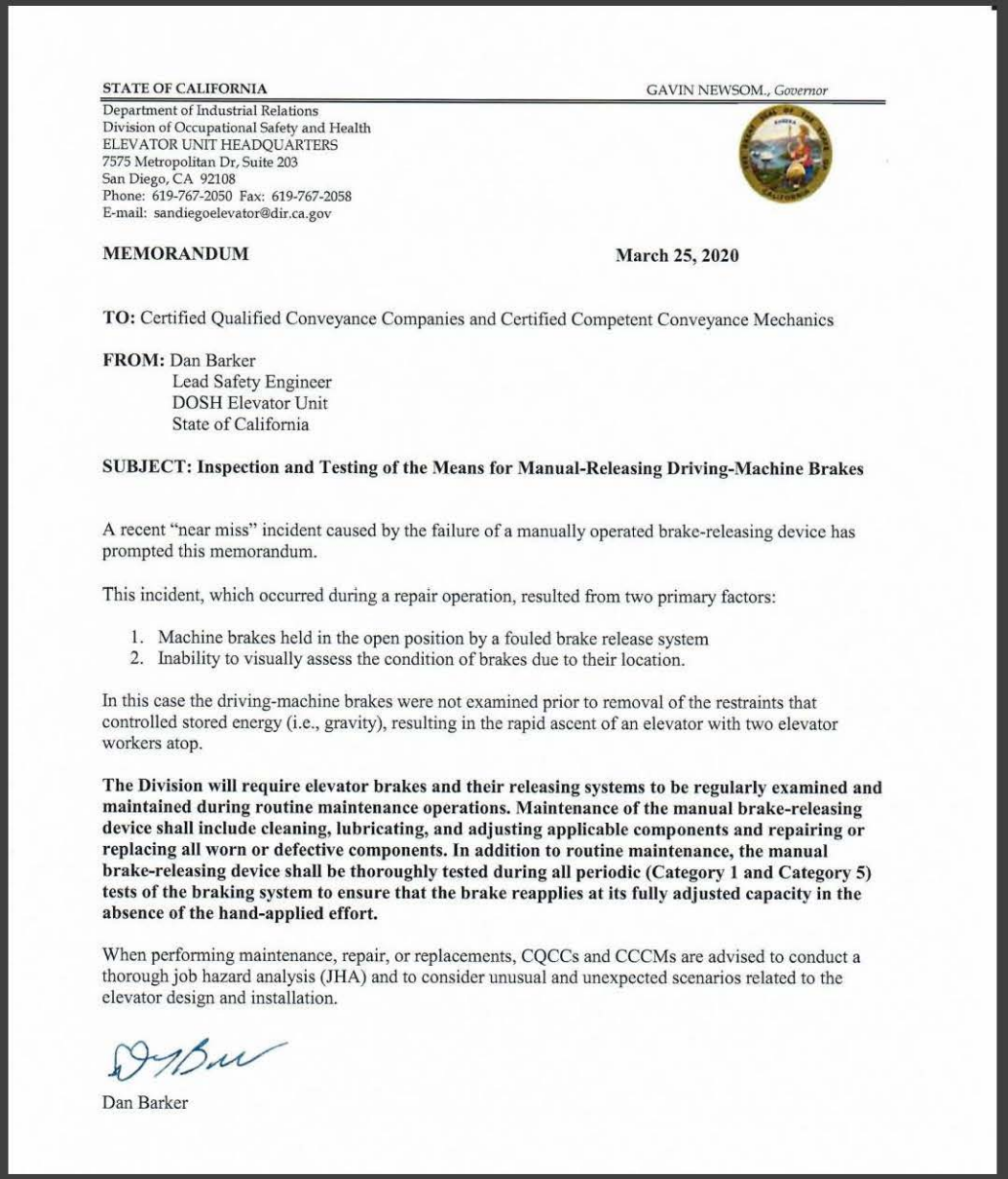
- A service mechanic took a trouble call on a Schindler 400A MRL that had been modernized with MCE controls.
- It was determined that a lay in the wire rope had broke and bound itself between the sheave and rope retainer with the car just above the bottom landing. The mechanic tried to drift the car using the manual brake lever in the control room without success.
- Weeks later, a repair crew was brought in to assess and correct the condition. Utilizing the employers' safety team, JHA's were performed to secure the car and plank out to the counterweight on the 13th floor. Rail blocks were used on top of rollerguides to secure the car.
- Once the repair crew had freed the wire rope, they removed the planking from 13th floor and proceeded to the car top.
- When the crew removed the rail block, the car immediately ascended toward the overhead. The manual brake cable was bound and holding the brake open.
- The crew was on top of the car until it crashed into the overhead.

Recommendations and Lessons Learned

- Always perform a detailed JHA.
- Control stored energy.
- Inspect brake prior to releasing stored energy.
- Anticipate potential mechanical failures.
- Beware of unanticipated consequences while working on MRL type conveyances.

Authority Having Jurisdiction - Investigation Outcomes

- AHJ performed thorough investigation of incident
- AHJ issued Memorandum to all Certified Qualified Conveyance Companies and Certified Competent Conveyance Mechanics
- AHJ requiring elevator brakes and their releasing systems to be regularly examined and maintained
- AHJ requiring manual brake release device tested during Category 1 and Category 5 tests



STATE OF CALIFORNIA GAVIN NEWSOM., *Governor*

Department of Industrial Relations
Division of Occupational Safety and Health
ELEVATOR UNIT HEADQUARTERS
7575 Metropolitan Dr, Suite 203
San Diego, CA 92108
Phone: 619-767-2050 Fax: 619-767-2058
E-mail: sandiegoelevator@dir.ca.gov

MEMORANDUM **March 25, 2020**

TO: Certified Qualified Conveyance Companies and Certified Competent Conveyance Mechanics

FROM: Dan Barker
Lead Safety Engineer
DOSH Elevator Unit
State of California

SUBJECT: Inspection and Testing of the Means for Manual-Releasing Driving-Machine Brakes

A recent "near miss" incident caused by the failure of a manually operated brake-releasing device has prompted this memorandum.

This incident, which occurred during a repair operation, resulted from two primary factors:

1. Machine brakes held in the open position by a fouled brake release system
2. Inability to visually assess the condition of brakes due to their location.

In this case the driving-machine brakes were not examined prior to removal of the restraints that controlled stored energy (i.e., gravity), resulting in the rapid ascent of an elevator with two elevator workers atop.

The Division will require elevator brakes and their releasing systems to be regularly examined and maintained during routine maintenance operations. Maintenance of the manual brake-releasing device shall include cleaning, lubricating, and adjusting applicable components and repairing or replacing all worn or defective components. In addition to routine maintenance, the manual brake-releasing device shall be thoroughly tested during all periodic (Category 1 and Category 5) tests of the braking system to ensure that the brake reapplies at its fully adjusted capacity in the absence of the hand-applied effort.

When performing maintenance, repair, or replacements, CQCCs and CCCMs are advised to conduct a thorough job hazard analysis (JHA) and to consider unusual and unexpected scenarios related to the elevator design and installation.

Dan Barker