

**MINUTES OF  
COLORADO PASSENGER TRAMWAY SAFETY BOARD  
EMERGENCY MEETING-VIA CONFERENCE CALL**

1560 Broadway, Suite 1300  
Denver, CO 80202

July 29, 2008

This meeting of the Board was publicly noticed according to the Division of Registrations' Policy 80-17.

**I. CALL TO ORDER**

Alan Henceroth, Board Chair, called the meeting to order at 10:03 a.m.

**II. RECOGNITION OF MEMBERS PRESENT**

Board Members Present:                    Alan Henceroth, Chair  
   Scott F. Mitchell, Vice Chair  
   Arthur Griffith, Secretary (10:15 a.m.)  
   Robert E. Hartzell, Member  
   Brian McCartney, Member  
   Paul Stewart, Member

Board Members Absent:                    Fannye Belle Evans, Member

Staff Members Present:                    John Roberts, Assistant Attorney General  
   Charlie Adams, CPTSB Staff  
   Larry Smith, CPTSB Staff  
   Nicki Cochrell, CPTSB Staff

Others Present via telephone:            Melanie Mills, CSCUSA

**III. BUSINESS**

**A. Remedial Order regarding Riblet Anchor Bolts**

Brian McCartney, Board member, disclosed that Vail has Riblet towers with the type of studs that will be discussed during the meeting. However, he does not have any conflicts and would be participating in the discussion and the vote during this agenda item. The Board agreed that he could participate.

While removing a Riblet fixed grip, one of the areas discovered broken studs found in the bolted base connection. Three towers had threaded stud failures with one tower having six broken studs. Additional inspections of Riblet tower base connections at several other resorts found the same failures with one tower having eight failed studs. A service bulletin was issued by NSAA.

With more investigation, the failures of the threaded studs have been found in tower base connections of this type regardless of the use of a plate flange or a cast flange design. Preliminary information indicates that the majority of stud failures occur on the uphill side of the tower, but stud failures have been found in all positions. It has also been found that many of the failed studs also have high stress indications (necked down) potentially caused by over tightening of the nuts during installation or later during torque checks.

With the large number of confirmed failures, it is imperative that arrangements be made to inspect the bottom flange connection threaded studs of Riblet towers using this bolted flange base connection.

At this time, Ultrasound inspections are the only method that is finding the broken or cracked threaded studs. Attempts were made on studs known to be cracked or broken from Ultrasound testing to detect the failure by other means. Methods tried were shaking the tower, "pinging" the bolt with a hammer, and different dye penetrant techniques. None of the methods indicated a cracked or broken stud. The Ultrasound indications were confirmed when the studs were removed. Bolts that showed cracks broke during the removal/replacement process.

The welds of the flange to the stub tube embedded in the concrete and the flange welded to the tower tube should be also be visually inspected at this time for signs of a crack propagation along the weld during the checking of the studs.

The Board discussed the information and took the following action.

Scott Mitchell moved to issue a remedial order regarding Riblet Tramways utilizing a tower base flange bolted connection between a tower stub embedded in concrete and the tower base flange based on the following findings.

**Findings of Facts:**

1. A Riblet tramway at Snowmass found cracked and broken studs during removal from service. Each tower utilizes 16 studs. Three towers revealed a total of 12 broken studs. One single tower had six broken studs.
2. Additional voluntary inspections of other ropeways at another ski area found over 60 studs with abnormal indications and 30 of those failed. A total of 100 towers were inspected totaling 1600 studs.
3. Failures of threaded studs have been found in tower base connections of this type regardless of the use of a plate flange or cast flange design.
4. Preliminary information indicates that the majority of stud failures occur on the uphill side of the tower, but stud failures have been found in all positions.
5. It has also been found that all of the failed studs have high stress indications (necked down) potentially caused by over-tightening of the nuts during installation or later during torque checks.

6. An Ultrasound procedure has been the only method that is finding indications of stretching, or broken or cracked studs. Alternative methods such as using a hammer on the stud or shaking the tower were unsuccessful in finding studs with known indications.
7. The aerial lift manufacturer is no longer in business.

**Remedial Order:**

1. Pursuant to Section 25-5-707 (1), C.R.S, for all existing Riblet tramways which have the flanged bolted connection, the area operator SHALL BE REQUIRED to conduct Non-Destructive Testing (NDT) testing utilizing an Ultrasound procedure, or complete replacement of such studs. All studs shall be completely replaced or NDT inspected, and the NDT indicated studs shall be replaced before passengers are allowed to ride the tramway.
2. An ASNT-TC-1A Level III Inspector shall design and approve the Ultrasound inspection procedure with the ability to detect stretched, cracked, and broken studs.
3. All areas shall visually inspect all towers utilizing the TOWER BASE FLANGE BOLTED CONNECTION for any cracks in the WELDMENTS of tower to base flange and foundation stub to base flange.
4. The studs must be either REPLACED or NDT inspected using an Ultrasound procedure every seven (7) years, corresponding with the dynamic testing of the tramway. The WELDMENTS of tower to base flange and foundation stub to base flange shall also be visually inspected every seven (7) years.
5. Base Flange Bolted Connections that are verified to be at least five (5) feet or more below grade do not need to be Ultrasound inspected.
6. The results of all inspections shall be reported to the Board office as soon as possible. All licensees are reminded that any failed studs are reportable Passenger Tramway Incidents per Board Rule 23.1 (G) (6).
7. All threaded studs which have failed shall be replaced with a threaded stud and nuts recommended by the manufacturer or a Qualified Engineer.
8. All threaded studs being replaced or reinstalled shall be tightened in accordance with the tightening instructions provided by either a manufacturer or a Qualified Engineer.
9. This Order shall become effective upon execution. The Board authorizes its Program Director, Charles H. Adams, to execute this Order on its behalf.

Art Griffith seconded the motion and it passed unanimously.

**IX. ADJOURNMENT**

The meeting was adjourned at 11:15 a.m.

*Approved by: Alan Henceroth, Chair*

*Date: October 16, 2008*

*Approved by: Arthur Griffith, Secretary*

*Date: October 16, 2008*