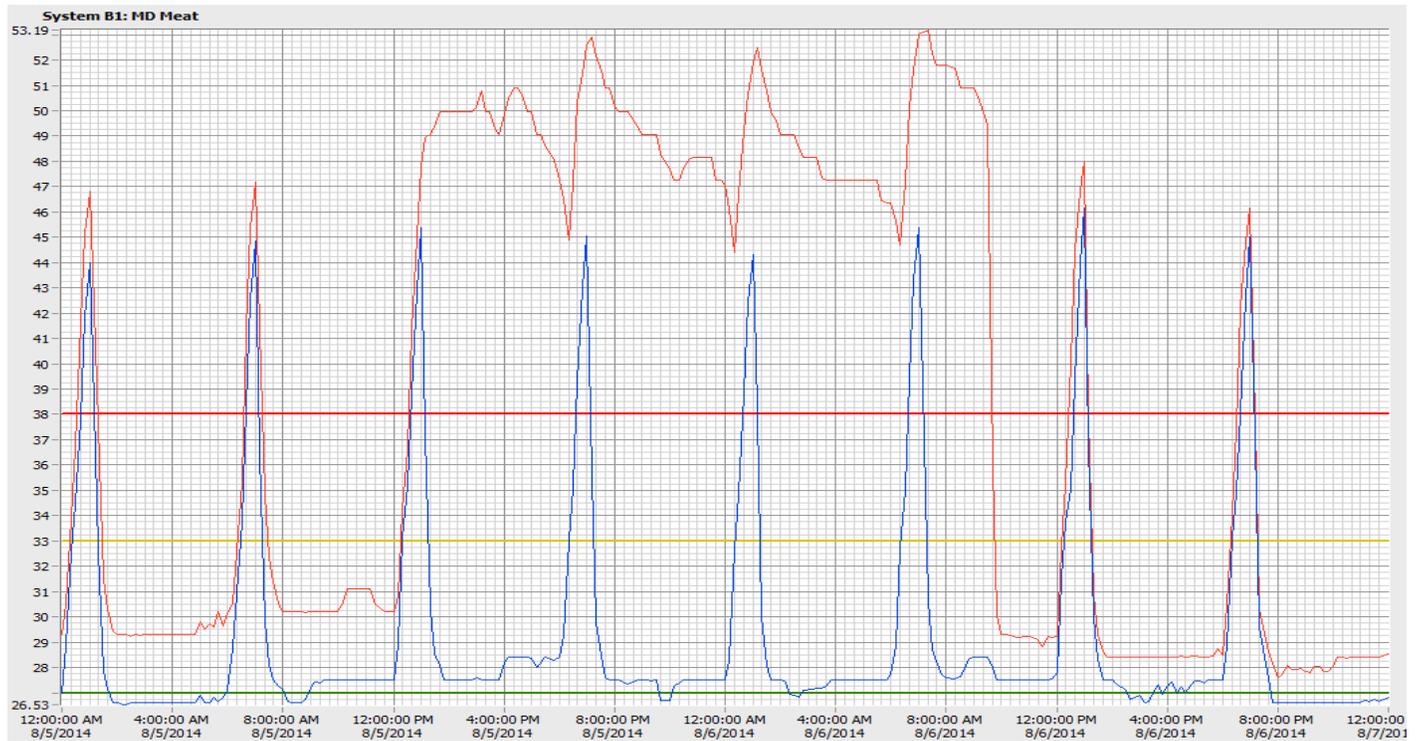


## CASE STUDY

# Evaporator fans



Picture: The graph shows 2 days of operation of two multi deck Meat cases.

This refrigeration system is serving multi deck frozen Meat cases. One day something happened!

The graph shows 2 days of operation of two multi deck Meat cases. The green line is the setpoint of 27°F. The yellow and red lines are the alarm markers of High and HighHigh settings. Defrost runs once 6 hours.

**The Symptom:** The Blue case is running perfectly but the Red case had shown inadequate behavior earlier with case temperature of 30°F. This time, after the defrost period, the red temperature did not lower again but stayed as high as 45-50°F.

**The Analysis:** As other cases on the same system are operating normally the problem is isolated to components of this case alone.

**The Problem:** When investigating the Red case it became clear that the evaporator fan was not working. Due to long working life its bearings were giving in and developed high friction which finally stalled its small electrical motor.

**The Cure:** Replace the fan with its built-in electrical motor.

**The Recovery:** Once the fan was replaced and working the temperature dropped to 29°F in 20 minutes.

**Note 1:** It took more than a week to discover this problem which had been coming on and off several times. It is a good practice to scan all sensor readings every day.

**Note 2:** The Red case needs tuning as it is unable to deliver temperature according to the setpoint.

*This VDV R M case study is from a series of real-world examples from refrigeration systems monitored by VDV Refrigeration Monitoring system. The purpose of this series is to bring forward actual problems, its effect on refrigeration temperatures, how the problem was detected and how the refrigeration system recovered.*