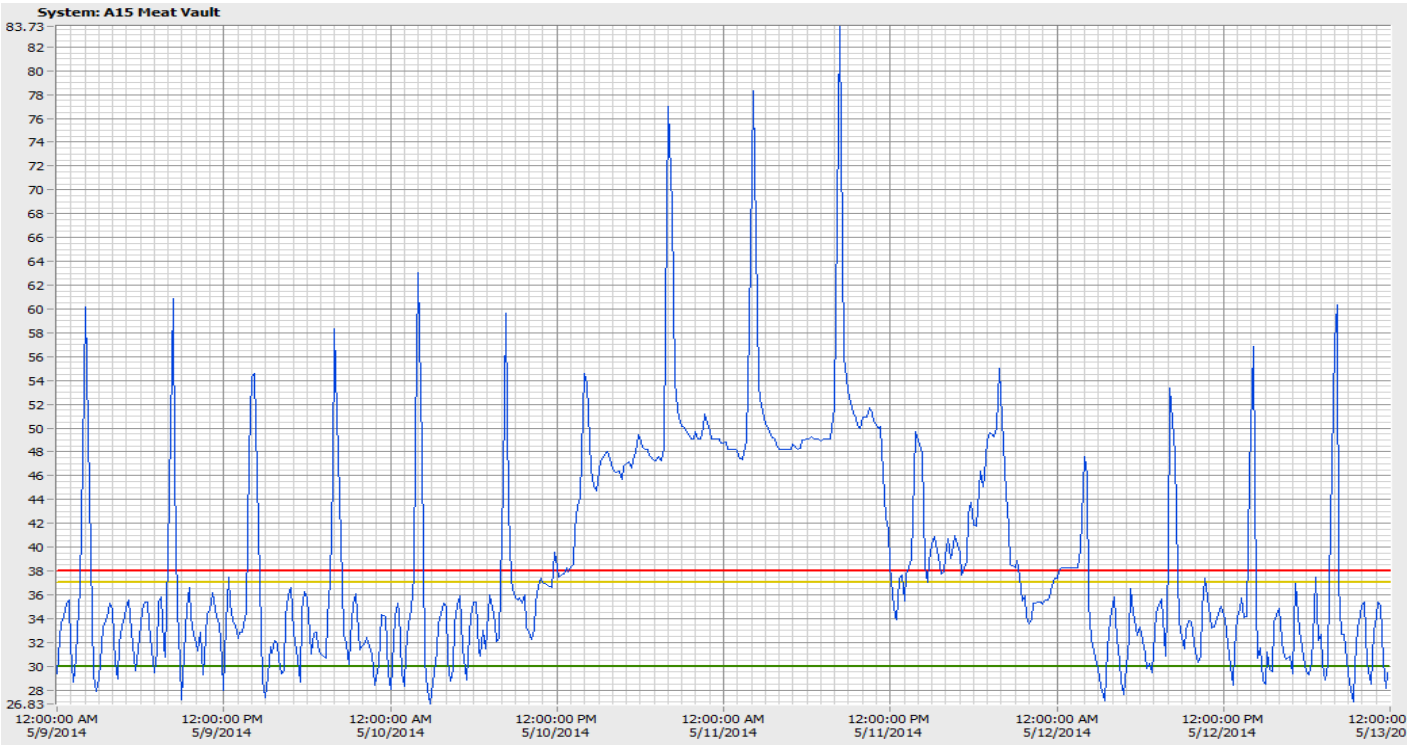
CASE STUDY

Thermal Expansion Valve (TEV) Problem



Picture: The graph shows 4 days of refrigeration operation.

This refrigeration system is serving the Meat Vault. One day something happened!

The graph show 4 days of operation. Blue trend line is the temperature of the Meat Vault. The green line is the setpoint of 30°F. The yellow and red lines are the alarm markers of High and HighHigh settings. Defrost runs every 6 hours.

The Symptom: At 10AM the Vault temperature rises relatively fast from 32°F up to 48°F. Other cases feed by the same compressor rack operate without any problem. Defrost behaves as before.

The Analysis: This problem is caused by lack of cooling capacity. As other cases feed by the same compressor rack operates without any problem the problem is isolated to this single case. The possible cause is the TEV or its filter becomes plugged up, or the solenoid valve is not functional and is closed.

The Problem: The TEV valve got its internal filter screen clogged, this has been building up slowly but then suddenly it blocked the flow of refrigerant fluid.

The Cure: Turn off the compressor, open the internal filter, clean, assemble again and start the compressor.

The Recovery: Just before Noon the next day the repair was over and the system recovered in the next 8 hours.

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

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