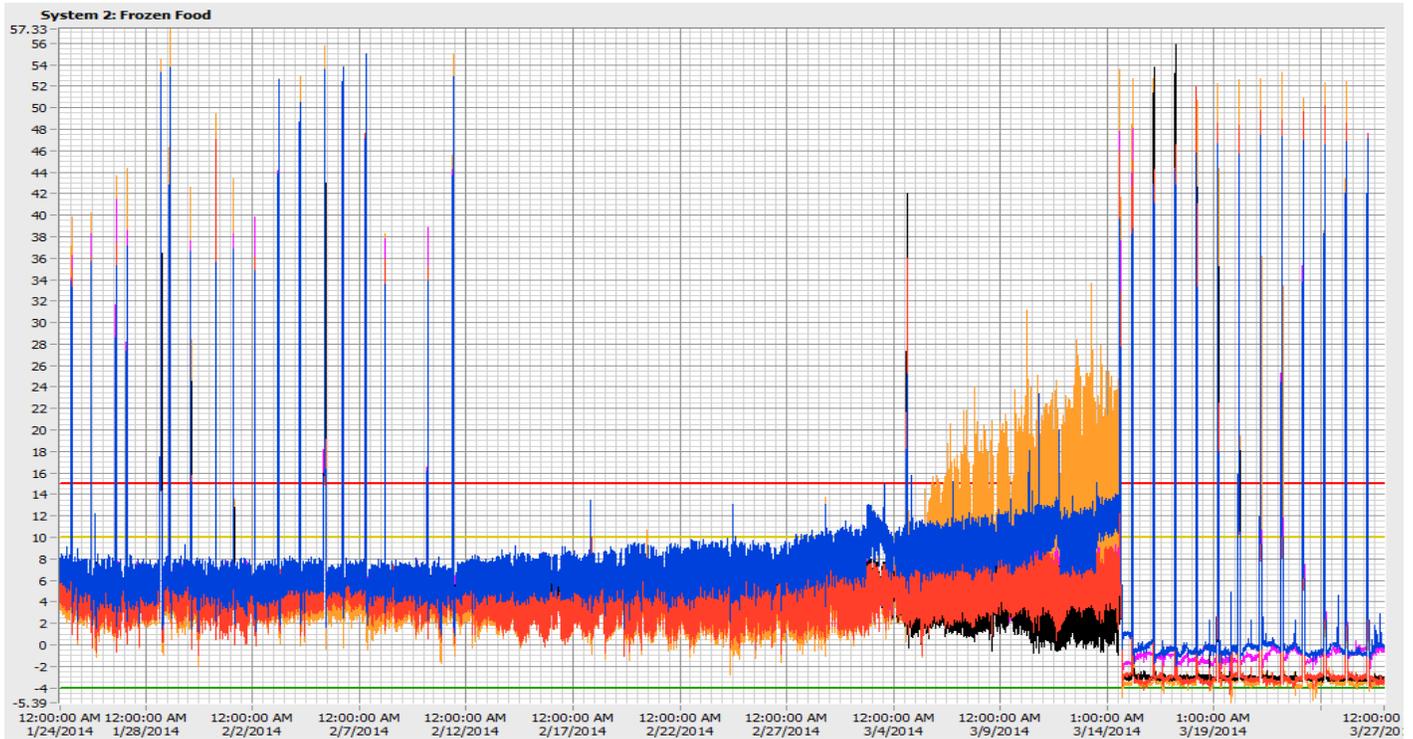


CASE STUDY

System Defrost Clock not working



Picture: The graph shows 2 months of operation of five Frozen Food cases.

This refrigeration system serves Frozen Food cases. One day something happened!

The graph shows 2 months of operation of five Frozen Food cases. The green line is the setpoint of -4°F. The yellow and red lines are the alarm markers of High and HighHigh settings. Defrost runs once every day.

The Symptom: Defrost functionality is missing. The setpoint temperature was not met for a long period the defrost problem started. After defrost quit working the case temperatures slowly increased as evaporators iced up resulting in lower efficiency. The orange trend line indicates an ongoing operation for more

than a week with temperatures higher than the H and HH alarm settings.

The Analysis: There is no defrost activity, however the cooling is ongoing with less capacity as icing builds up. This problem is based on a component common to all the five systems.

The Cure: Replace the systems defrost clock.

The Recovery: Once the defrost clock was replaced it took less than 6 hours for the system to recover.

Note 1: As the problem was discovered and fixed the opportunity was used to re-tune the temperature control of the five cases to become as designed.

Question: Why became operation so much better after replacement of defrost clock?

Answer: Because of tuning of the system

Note 2: It took more than a week to discover this problem. It is a good practice to scan all temperature trend lines every morning.

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.