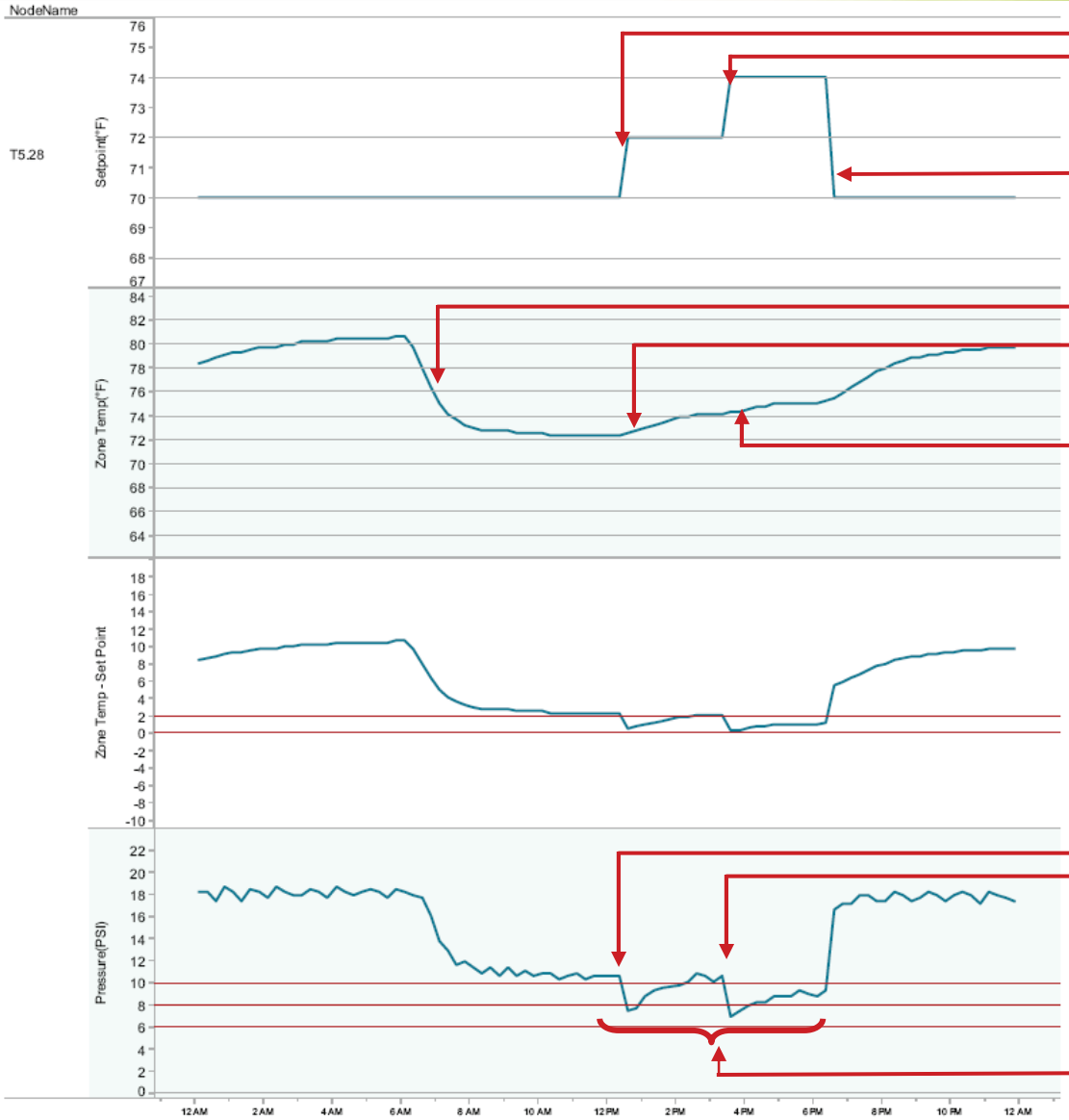
Zone Behavior – Proper Response (example)



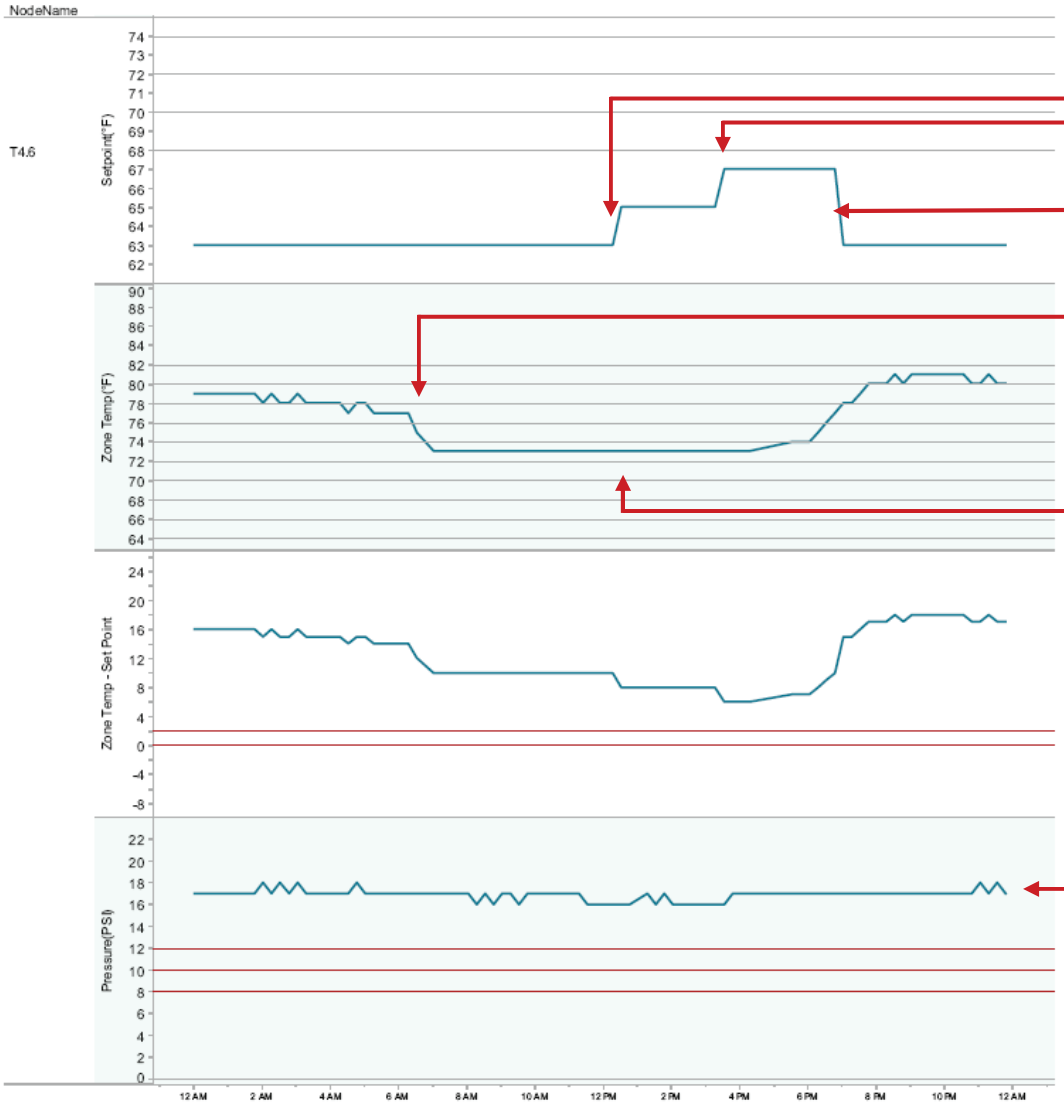
SETPOINT TEMPERATURE
- •1st DR Event bumped up setpoint 2 deg
- •2nd DR Event bumped up additional 2 deg
- •Completion of Event – back to normal

ZONE TEMPERATURE
- •Morning A/C comes on
- •Temp climbs after initial DR event
- •Continues climbing after 2nd DR event

DELTA SETPOINT MINUS ZONE TEMP
- Should maintain to within 2 degrees of setpoint throughout

BRANCH PRESSURE
- Drops after first event called
- Drops after second event called
- Stays about neutral 8psi during entire DR period.

Zone Behavior – Insufficient Cooling (example)



SETPOINT TEMPERATURE
- 1st DR Event bumped up setpoint 2 deg
- 2nd DR Event bumped up additional 2 deg
- Completion of Event – back to normal

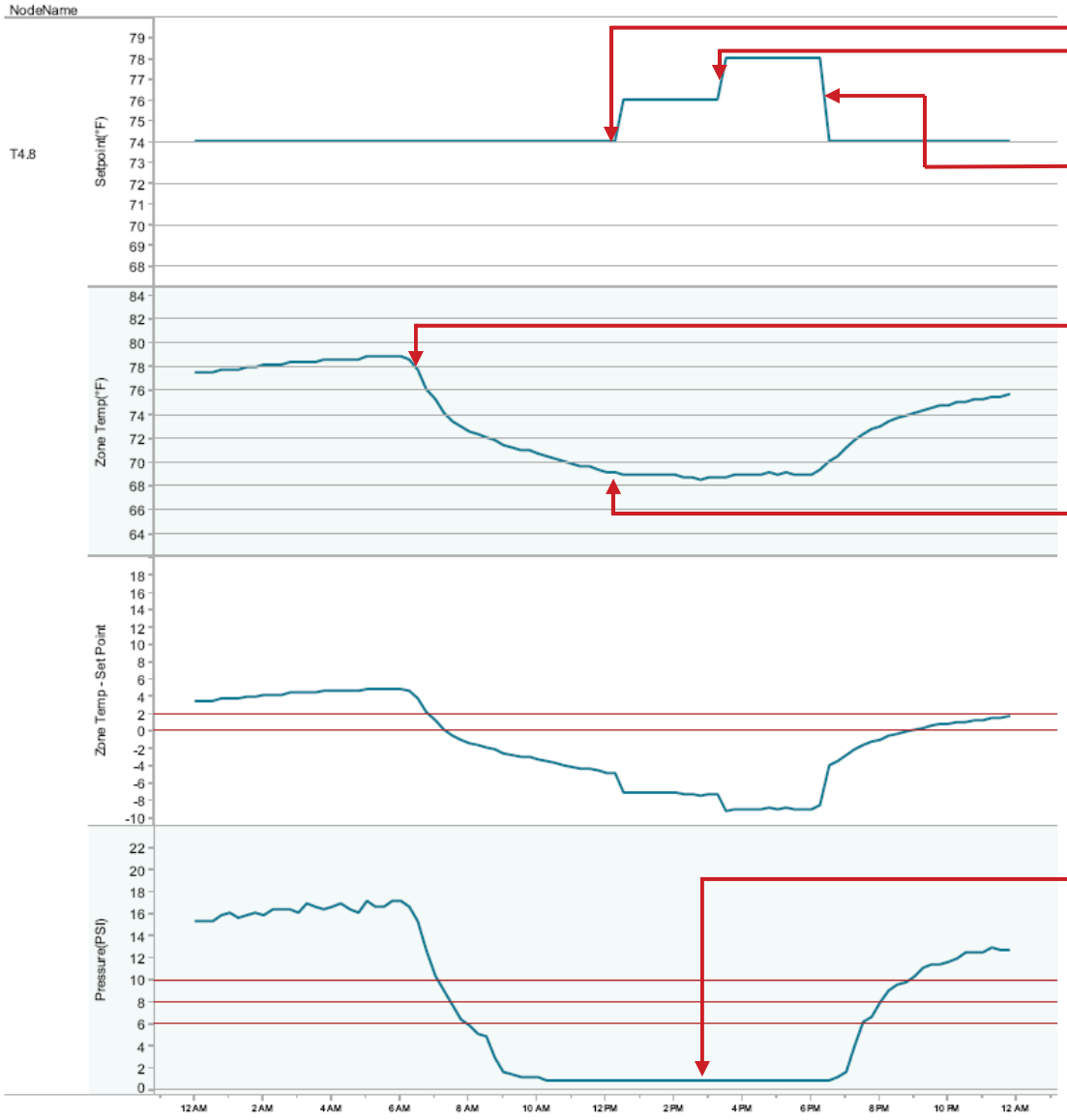
ZONE TEMPERATURE
- Morning A/C comes on
- A/C working, but never makes it to 63 deg setpoint. Stabilizes at 73 deg.

DELTA SETPOINT MINUS ZONE TEMP
- Best able to achieve is about six degrees higher than setpoint.

BRANCH PRESSURE
- Always maxed out i.e. calling for maximum cooling.

Causes:
- Setpoint too low
- Faulty Reset Velocity Controller
- Mechanical Equipment Fault
- Undersized cooling capacity design

Zone Behavior – Too Much Cooling (example)



SETPOINT TEMPERATURE

- 1st DR Event bumped up setpoint 2 deg
- 2nd DR Event bumped up additional 2 deg
- Completion of Event – back to normal

ZONE TEMPERATURE

- Morning A/C comes on
- Temp keeps dropping, even below setpoint

DELTA SETPOINT MINUS ZONE TEMP

- Temperature way too cold, much below setpoint most of the day

BRANCH PRESSURE

- Thermostat is trying to compensate for over cooling all day long.

Causes/Remedy:

- Faulty Reset Velocity Controller
- VAV Box Fault
- Adjacent Zone Overcooling

Additional Energy Savings: Deadband Option

What is it?

- When ambient temperature is within certain limits e.g. between 68F and 78F, *ALL HEATING AND COOLING IS DISABLED*.
- When ambient temperature is outside these limits, heating and cooling is *ENABLED* to maintain basic comfort.

Why?

- Up to 60% energy savings potential, for occupants who can tolerate some range of temperature swing.
- Many universities and public institutions have mandated this type of temperature setpoint policy…the Deadband WPT enables and automatically enforces the policy.
- Benefits are INCREMENTAL to Night Setback, Occupancy Override, Demand Response and other energy management strategies available with the standard WPT (and also available on deadband WPT).