DISTRICT COOLING PLANT CONTROL SYSTEMS

Be careful what you ask for--You just might get it.

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Overview

• Purpose of a district cooling plant control system
• Typical district cooling plant control system
• Some do’s and don’ts for district cooling control system
Introduction

• 34 Years in Process Control
• Raised in central USA
• Now living in Abu Dhabi UAE
• District cooling control system design
Purpose of a district cooling control system

- Provide centralized control of plant systems and processes
- Provide real-time process data to operators
- Allow operators to monitor and control district cooling systems and processes
- Provide coordinated operation of all district cooling systems and processes
- Provide improved efficiency
- Acquire and store plant process and operational data
Typical district cooling control system

- **Field Instruments**
  - Sensors
  - Final control elements
- **Process controllers**
  - Processor
  - Communication
  - Input/Output
- **Operator Interface**
- **Software**
- **Interface to packaged control systems**
Do’s and don’ts for district cooling control systems

- **Don’t design or specify redundancy out of fear**
  - Hardware is more reliable than in the past
  - Reliability is a function of risk management

- **Do design and specify for overall control system reliability and availability**
  - Assess reliability and availability based on acceptable risk management
  - Segregate control of plant systems within the control system
  - Provide redundant controllers only on critical processes
Do’s and don’ts for district cooling control systems

- Don’t design and specify an overly complicated control system
  - Coordinated control does not always require fully integrated control.
  - Hardwired control still provides the highest reliability
  - Graphic displays must allow operators to quickly assess plant operation during emergencies

- Do design and specify graphic displays that are operator “friendly”
  - Match design drawings when possible
  - Keep displays simple and easy to read
  - Use pop-up windows for “drilling down” into the specific plant systems
  - Integrate package systems based on the required monitoring and control capability
Do’s and don’ts for district cooling control systems

- Don’t expect too much from your control system regarding efficiency improvement
  - Process parameters can only be fine-tuned by the control system
  - All control valves are not created equal
  - Don’t shoot the messenger…..the control system only reports the process data

- Do design and specify equipment for efficient operation
  - Overall efficiency is affected by delta T
  - Your delivery contract can effect delta T
  - Select the correct control algorithm for the application
  - Tune that loop
Thank You!