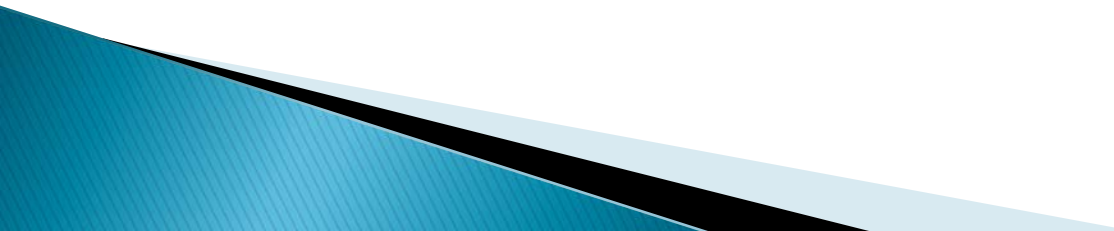# Control Room Management
Providing Adequate Information

Implementation – LDC Perspective

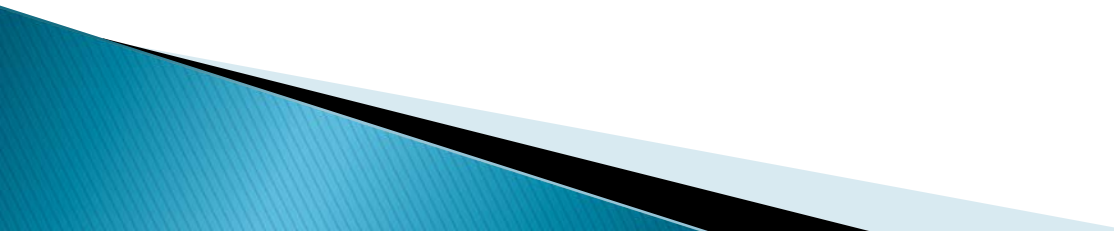Tom Baker

CenterPoint Energy Gas Control

CenterPoint Energy LDC

- LDC Operations

- 3,000,000 Customers

- 6 States

- 1000 Gate Station, 6000 DRS

- No Compression

- 2 Gas Control Rooms (Houston & Minneapolis)

- 2 SCADA systems
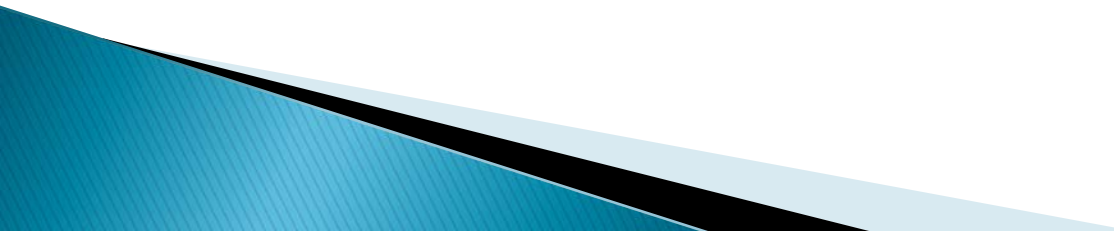
192-631 (c) Providing Adequate Information

CenterPoint Energy is always working to provide adequate information for controllers
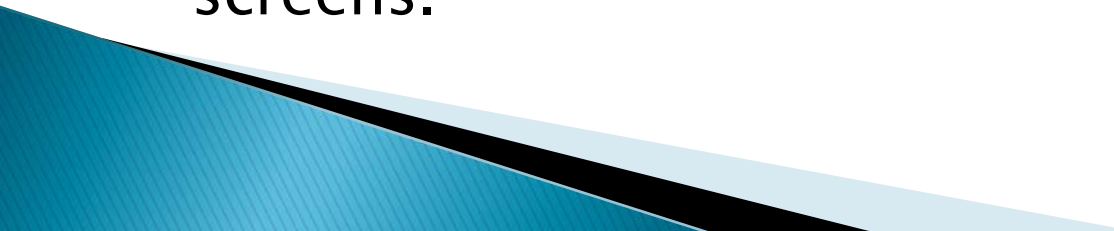
CRM has given us new challenges

Historically

- Operating Pressures
- Control Logs
- Call-Out/Duty List
- Communication Equipment
- Receipt and Delivery Points
- System Outages
- Operating Maps
- GIS Mapping System
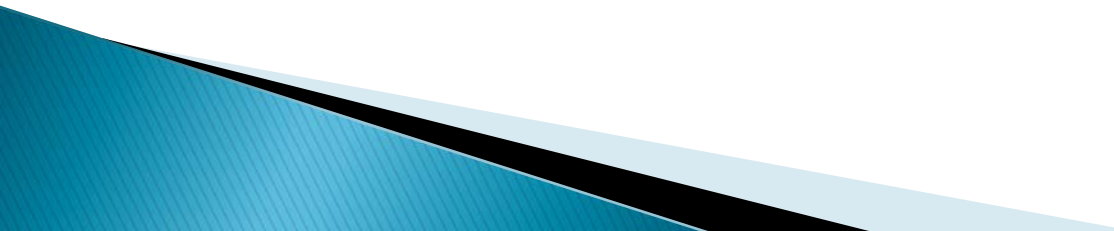- CRM Plan
- EOP Plan
- Training Plan
- OQ Plan

API RP 1165 Incorporated by Reference

- (1) Scope

- (4) Human Factors Display Design

- (8) Object Characteristics

- (9) Object Dynamics

- (11.1) & (11.3) Consistency

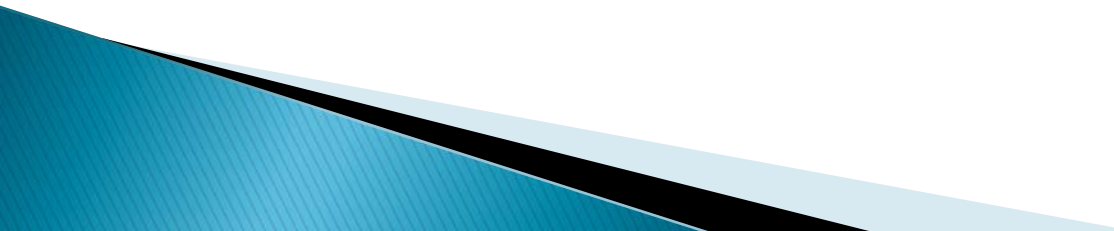# API RP 1165 Sec 4 – Human Factors Display Design

- CNP began to develop SCADA applications using the guidelines of API 1165 in 2008.

- Still educating ourselves on incorporating API 1165 into nuances of each SCADA system.

- Some displays are now close to standards .

- Each screen is unique and takes time and care to develop correctly.

- Feed back from controllers allows for "fine tuning" of screens.
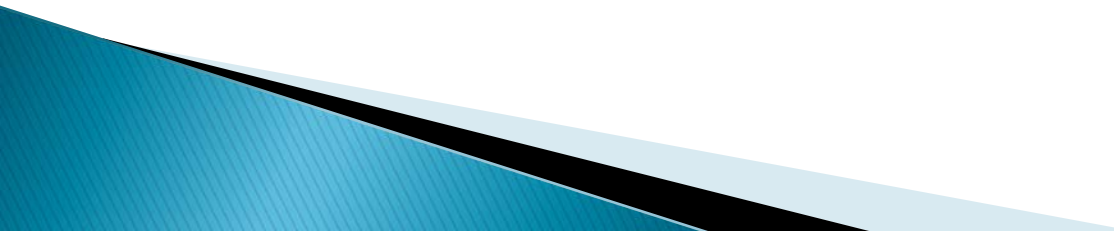
1165 Sec 8 – Object Characteristics

- To minimize unintended confusion, SCADA displays will use minimal and optimal contrasting colors.
    ◦ Black, Blue, Grey, and White
    ◦ Red Text Indicates an Abnormal Condition.
- Controllable objects are identified with bold borders.
- Symbols and shapes are being standardized and are consistent throughout an application.
- Challenges working with two SCADA systems in an effort to also provide some similarity across systems

1165 Sec 9 – Object Dynamics

▸ CenterPoint Energy utilizes object dynamics to change the color of text/symbols for the following conditions:

- Pressures in an Abnormal State

- Alarms Received

- Communication Failures

- Odorizer Injection Rates

- Stations On/Off Scan

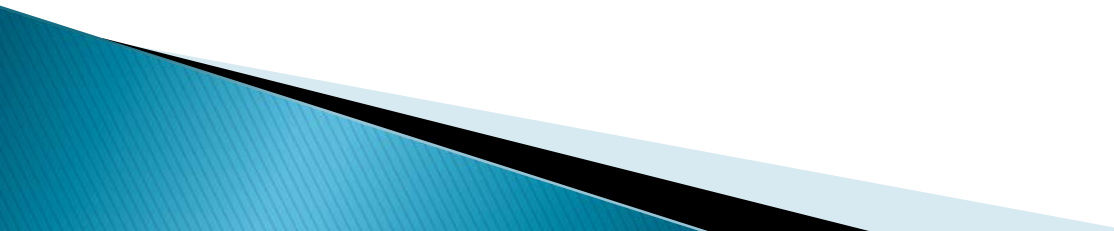# 1165 Secs 11.1 and 11.3 – Consistency in Company, Control Centers, and Remote Locations

- CenterPoint Energy programs each SCADA system from one location for that system.

- With in system we are standardizing naming convention for stations, and tag names.

- Working to standardize equipment on the displays to avoid confusion from users.

- Legacy issues take time and effort to resolve

Consistency in Company, Control Centers, and Remote Locations (Cont)

- Remote users access, and will access, the SCADA system through a "view only."

- This will provide the constancy between remote and central location.

Point to Point Verification

- Point to Point verifications will be conducted and documented in electronic logs, when related field equipment is:
  - Added, moved, repaired, or any other changes affecting pipeline safety are made to field equipment or SCADA displays.
- This is will be one of the more challenging areas of the rule to implement completely.
- Documentation, procedure development and training must take place across six state with a large field work force and a wide variety of field site designs.

Test and Verify an Internal Communication Plan

- Internal Communication Plan(s) will;
    - Be Tested and Verified
    - Provide for Safe Manual Operation
    - Notify Duty Supervisor(s)
    - Notify Applicable Manager(s)
    - Notify Internal IT Support
    - Notify Communications Group
    - Establish Communication Process
    - Ensure Equipment is Operating Properly
    - Deploy Critical Field Personnel
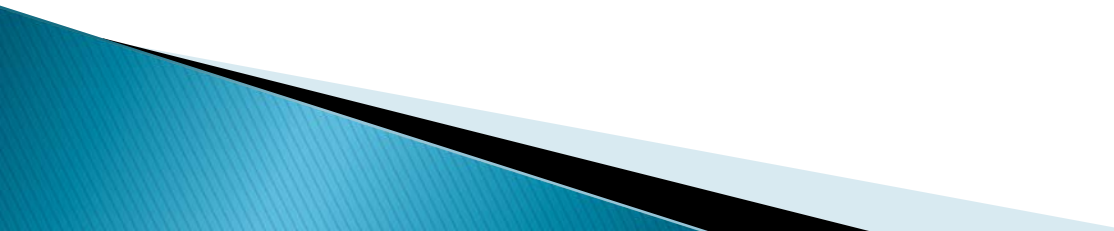- Again challenges exist to coordinate across all field areas.

Backup SCADA System(s)

- CenterPoint Energy does not operate backup systems
- This will be a consideration if we move to have centers back each other up.

Controller Shift Change

- CenterPoint Energy continues to refine our procedures for controller shift change.
- These procedures include:
  - Outgoing controller creates a controller shift log with all pertinent system information from previous shift(s).
  - Incoming controller must acknowledge and clear the required follow up section of the outgoing controller's shift log.
  - When possible, verbal communication between controllers is exchanged.
- We have always looked at this as a critical function – the CRM rule is bring even more focus to the details and documentation of shift changes.

Controller Shift Change – Pertinent Information:

- Abnormal Operating Conditions
- Current Condition of the Pipeline System(s)
- Specific Alarms
- Abnormal Injection Rates
- Ongoing Maintenance
- Pressure Restrictions
- Weather Forecast
- Gas Supply Issues
- SCADA Communication Concerns
- Gas Quality Concerns

Summary

- Provide correct and adequate information to Gas Controllers is vital to operations

- Using the CRM rule is helping to provide focus to important aspects of providing this information.

- There is significant work and effort still required to meet the requirements of 192.631(c) and applicable portions of API RP 1165