



# **PRESSURE LIMITING AND REGULATING STATIONS: TELEMETERING OR RECORDING GAUGES**

49 CFR 192.741

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# 49 CFR 192.741



## 49 CFR 192.741: Pressure limiting and regulating stations: Telemetering or recording gauges.

- (a) Each distribution system supplied by more than one district pressure regulating station must be equipped with telemetering or recording pressure gauges to indicate the gas pressure in the district.
- (b) On distribution systems supplied by a single district pressure regulating station, the operator shall determine the necessity of installing telemetering or recording gages in the district, taking into consideration the number of customers supplied, the operating pressures, the capacity of the installation, and other operating conditions.
- (c) If there are indications of abnormally high or low pressure, the regulator and the auxiliary equipment must be inspected, and the necessary measures employed to correct any unsatisfactory operating conditions.

# Definitions



**Distribution line** means a pipeline other than a gathering or transmission line.

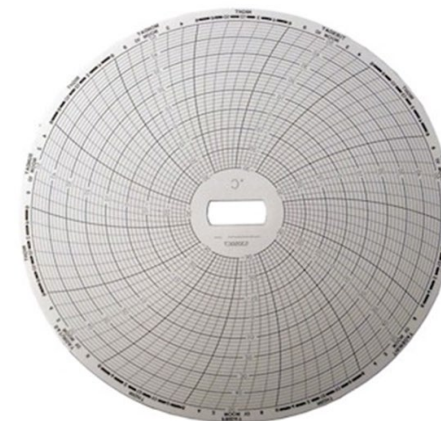
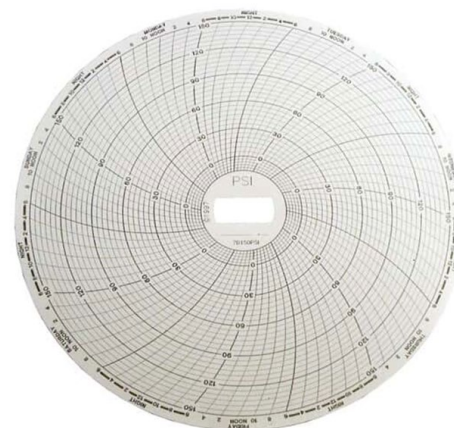
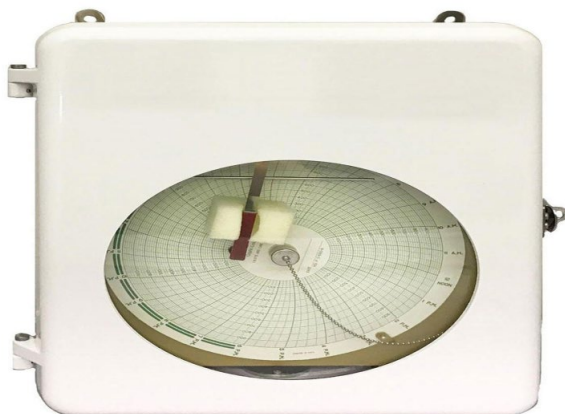
**District regulator station** or **district pressure regulating station** is a pressure regulating station that controls pressure to a high- or low-pressure distribution main. It does not include pressure regulation whose sole function is to control pressure to a manifold serving multiple customers.



(a) Each distribution system supplied by more than one district pressure regulating station must be equipped with telemetering or recording pressure gauges to indicate the gas pressure in the district.



# Chart Drive Images



# Electronic Recorder Images



# Maintenance



## Maintenance of Telemetering Instruments, Recording Gauges, and Records

All instruments used for telemetering or recording pressures should be operated in accordance with the manufacturers' recommended instructions.



Best practice should be to inspect and test in accordance with said instructions at intervals not exceeding 1 year.

# Installation



## Where should I install telemetering or recording pressure gauges?

Each operator should install telemetering or recording pressure gauges in their system at locations which would best capture the indication of an abnormal operating condition.

Operators should consider installing pressure recording devices in areas where low pressure may occur to ensure pressure does not fall below the minimum allowable operating pressures.

Records should clearly indicate the location of recording devices and the date/time of pressure readings.

Tests and repairs at these sites should be recorded.



# Recording Charts



## Benefits and difficulties with telemetering and recording gauges.



- Installed in remote location without power or sunlight.
- Charts available in different pressure ratings.
- Available in different recording times.



- Requires a technician to travel to the site on certain time requirement. (day, week, month, etc.).
- Clock dependent on small battery.
- Cannot be checked remotely.
- Does not store large amounts of data.



# 49 CFR 192.605



## 49 CFR 192.605: Procedural manual for operations, maintenance, and emergencies

(c) Abnormal operation. For transmission lines, the manual required by paragraph (a) of this section must include procedures for the following to provide safety when operating design limits have been exceeded:

- (1) Responding to, investigating, and correcting the cause of:
  - (i) Unintended closure of valves or shutdowns;
  - (ii) Increase or decrease in pressure or flow rate outside normal operating limits;
  - (iii) Loss of communications;
  - (iv) Operation of any safety device; and,
  - (v) Any other foreseeable malfunction of a component, deviation from normal operation, or personnel error which may result in a hazard to persons or property.

# IAC 5-3-2(o)(f)(2)



## IAC 5-3-2(o)(f)(2)

(o) 49 CFR 192.605 (Procedural manual for operations, maintenance, and emergencies) is augmented to include an additional paragraph (f) to read as follows:

"(f) The written manual required by paragraph (a) of this section, referred to as the plan in this subsection, shall ensure the safe operation of the operator's pipeline facilities. The plan shall include, by sections, the emergency, operations, and maintenance procedures for all the pipeline facilities and shall include procedures for handling abnormal operations. This plan, when submitted, becomes a regulation for the particular operator who filed it. In addition, an operator shall:

- (1) submit a copy of the plan to the division;
- (2) keep records necessary to administer the plan effectively;
- (3) revise the plan as:
  - (A) experience dictates; and
  - (B) exposure of the facilities and changes in operating conditions might warrant; and
- (4) submit to the division all subsequent revisions of the plan not later than twenty (20) days after the effective date of the changes. Minor revisions may be made in a cover letter."

# Ink



## Explanation notes on charts

- Smudges
- Extra ink
- Windstorm shakes the chart
- Battery dies



If you write on the chart an explanation of the problem and how it was addressed and by who, it helps when we question the data on the chart.





# Correct Sized Chart on the Chart Drive



**Good Example:** 100 PSIG chart drive should have 100PSIG chart.



**Bad Example:** 100 PSIG chart drive with 500 PSIG chart.



**Good Example:** 500 PSIG chart drive should have 500PSIG chart.



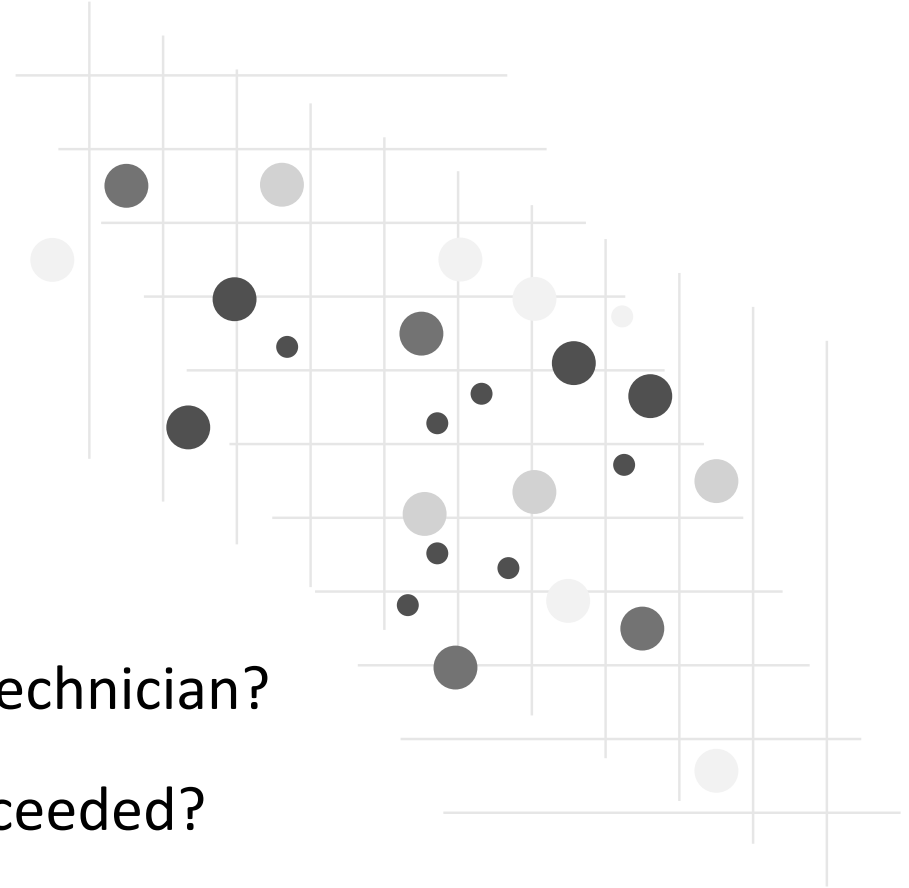
**Bad Example:** 300 PSIG chart drive with 24-inch Water Column chart.

# Data Review



## How are you reviewing your data?

- Intervals you are reviewing.
- Who is reviewing?
- Date of the review.
- Is there action needed for the data?
- Who is acting on that data?
- What documentation is being captured by the technician?
- What is the MAOP of the pipeline and was it exceeded?



# Abnormal Operating Conditions



**If an abnormal operating condition is indicated, the operator should:**

- Pressure regulating and auxiliary control equipment is in satisfactory operating condition.
- Pressure recording device is in proper operating condition.
- Check distribution system in the vicinity of a high-pressure or low-pressure condition.



**Any unsatisfactory condition found by inspection or test should be corrected as soon as practical.**

## **49 CFR 192-741(c)**

(c) If there are indications of abnormally high or low pressure, the regulator and the auxiliary equipment must be inspected, and the necessary measures employed to correct any unsatisfactory operating conditions.

# What should be recorded?



- Record for the indication of the abnormally High or Low pressure.
- What was inspected?
- What was found during the inspection?
- What action was taken to correct the abnormal pressure?
- Who performed the inspection and/or correction?
- Was the MAOP exceeded?
- Was pressure regulating devices operating correctly?
- If the telemetering equipment or recording gauge was at fault was their documentation of repair?



# Inspection of Telemetering devices



All instruments used for telemetering or recording pressures should be operated in accordance with the manufacturers' recommended instructions.

As a common practice the instrument should be inspected and tested in accordance with said instructions at intervals not exceeding 1 year.



# Good & Bad of Electronic Recording Devices



- Store large amounts of data.
- Can be checked from remote location.
- Has alarm capabilities built in.
- With solar can be installed in remote locations.
- Can be installed on many difference pressure ranges.



- Relies on power.
- Dependent on power or solar.
- Has more moving parts and electronics.

# Communication with Electronic devices



## What is your procedure for verifying communication?

- Do you have land line or cell service (static IP/data plan)?
  - Land line still have a dial tone
  - Cell still have service
- Do you have electric or solar with battery backup?
- How do deal with weather?
  - Power outage (tornado, high winds, & sub-zero temp)
  - Snow covered
  - Cloudy days
- Brown & Black outages
- Scheduled outages
- Vandalism
- Insect damage



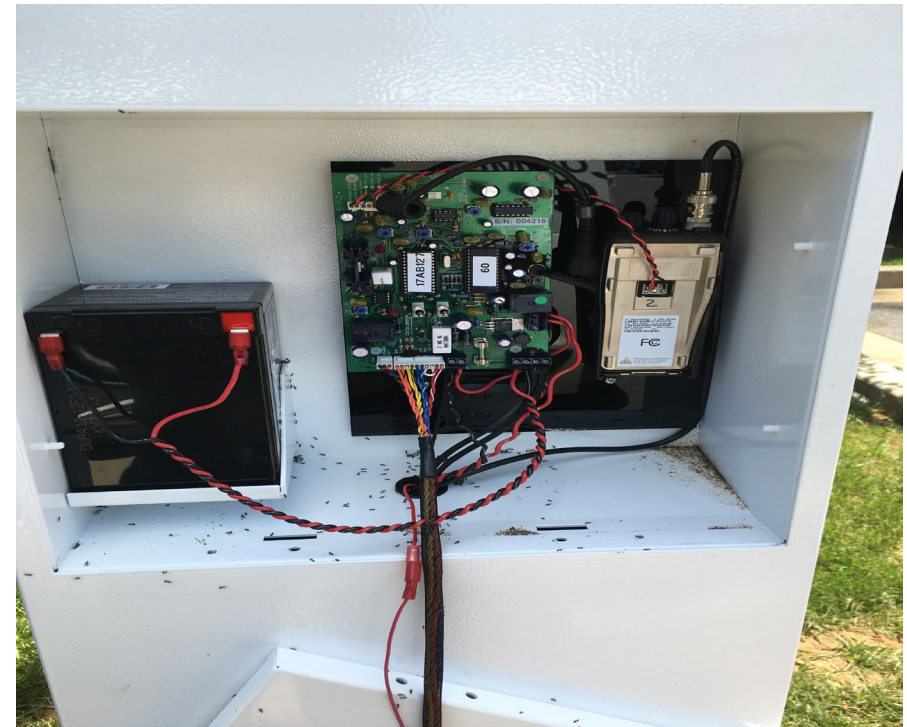


# Snow Removal from Solar Panels





# Agenda



# Electronic Devices



Pressure can be checked remotely with real time readings.

Can see pressures that did not register on the chart recording devices.

Change HH, LL, H, and L parameters from remote location.

Can download all records.





## Review of the Telemetering and Recording Gauges

Operators switching from Recording Gauges to Telemetering.

- Charts were installed, removed, and reviewed with documentation for all three.
- When adding telemetering or converting to all telemetering an operator needs to write procedure on how and when they will review the telemetering data.
- Need to have documentation on the following:
  - Who reviewed
  - When it was reviewed
  - Documentation for any AOCs
  - What action was taken for the AOC and by who



# Questions



# Questions and Answers



Q: On Charts, what kind of issues could warrant further action?

A: While when charts show that pressure is holding below MAOP, it is typical to just note that date when the chart was reviewed and who did the review, if the MAOP is exceeded, or complete pressure is lost, it is recommended to note what caused the loss/exceedance and refer to work orders that resolved the issue of the exceedance. You **MUST** document your remediation of a Safety Related Condition as required under 170 IAC 5-3.

# Questions and Answers



Q: When would an operator need to report to the division of an overpressure event? Do they have to notify at any exceedance at all of MAOP or does it include 10% allowable buildup?

A: Under 170 IAC 5-3-4(a)(3)(e) the division requires a telephonic notification when the MAOP plus 10% buildup as defined in 49 CFR 192.201.

This would mean that for a 60PSIG MAOP, anything above 66PSIG MUST be reported to the Division.

This report MUST be made as soon as practicable, not to exceed 1 hour of discovery.



# THANK YOU

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