+ 62-6218 (REV. 6/79)

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FOR INTRA-COMPANY USES

From Division or Department: GAS DISTRIBUTION

FILE NO. 464

RE LETTER OF SUBJECT: S.P. 464-2
District Regulator Station Maintenance

To Division or Department:

September 1, 1982

DIVISION MANAGERS:
MANAGER, PIPE LINE OPERATIONS:

The subject Standard Practice has been revised effective April 30, 1982. A copy is attached for your use.

The revisions:

1. Broaden the scope of the Standard Practice (including the title) to more clearly cover district regulator stations.

2. Revise maintenance procedures to be consistent with the revisions to Form 62-6321, "District Regulator Station Maintenance Record."

3. Restate Class B inspection procedures for over-pressure protection devices.

This Standard Practice, as now written, no longer requires the use of Forms 75-299 "Valve Maintenance Record", or Form 75-300 "Vault Inspection Record."

Personnel responsible for the maintenance of district regulator stations should become familiar with these revisions.

In addition to the routine distribution of this Standard Practice to the supervisory personnel listed on Page 2 of the Standard Practice, sufficient copies will be sent under separate cover for all Measurement and Control Manuals. Division Gas Superintendents have lists of M&C Manual holders.

J. B. Stoutamore
J. B. STOUTAMORE

[redacted]

Attach.

62-7501 REV. 4-65

PACIFIC GAS AND ELECTRIC COMPANY
STANDARD PRACTICE

STANDARD PRACTICE NO. 464-2

EXECUTIVE OFFICE OR DIVISION GAS OPERATIONS PAGE NO. 2 EFFECTIVE 9/1/82

ISSUING DEPARTMENT GAS DISTRIBUTION REPLACING PAGE NO. 2 EFFECTIVE 12/1/72

SUBJECT:

DISTRICT REGULATOR STATION MAINTENANCE — GAS MEASUREMENT AND CONTROL MANUAL SECTION 13

DISTRIBUTION: Division Managers
Division Gas Superintendents
District Managers
District Gas Superintendents
Manager, Pipe Line Operations
Gas Measurement and Control Manual Holders

Additional copies of this standard practice may be obtained from Gas Operations, 77 Beale Street, San Francisco, (Extension 1604).

* Paragraph Revised
** Paragraph Added

(SEE OVER)

DISTRICT REGULATOR STATION INSPECTION, TESTING AND MAINTENANCE WORK

GAS MEASUREMENT AND CONTROL MANUAL SECTION 13

CLASS A INSPECTION - EXTERNAL

CLASS A INSPECTION

1. Pressure Checks

a) Make a 24-hour recorded pressure check utilizing the permanent pressure recorder if one exists. Include a zero check at the start and at the finish on each 24-hour recording. When done in conjunction with a Class B inspection, this test should be performed after the maintenance work is complete and the station returned to service. The chart must be properly identified as to location, date, reason for test and special comments as required. Chart must be initialled by person performing the test.

b) Make a filter differential pressure test with an indicating gage or manometer at the inlet and outlet. If the differential exceeds the maximum or minimum pressures normal to the installation, inspect the filter elements.

2. Make Visual Inspection to Determine:

a) Vault covers open and close properly and are not a hazard to the general public or to PGandE personnel.

b) Ground level around vault provides adequate drainage and is not a hazard to the general public or to PGandE personnel.

c) Presence of gas in vault, using combustible indicator. Test fittings and connections for leakage, using combustible indicator or liquid soap.

*d) Ventilating ducts and gratings are clear and operating. Relief stacks are clear.

*e) Vault structure, ladders, hooks and related equipment are in good mechanical condition.

*f) Piping and related equipment including regulators and overpressure protection devices are in good mechanical condition and diaphragm vents are clear.

*g) Filter closures are in good mechanical condition.

h) Locking devices are present and operate properly.

3. Operating Tests

*a) Check pressure settings and test working and standby regulator or control valve for lockup or ability to control minimum flow.

*Paragraph Revised
**Paragraph Added

b) Test overpressure protection devices:

1) Cause monitor regulators or control valves to operate and take over pressure control at set point.

2) Test mechanical relief valve for ability to operate at overpressure set point.

3) Test automatic shutoff for ability to operate at over and under pressure set points.

4) Verify proper level of sealant in liquid seal reliefs.

4. Valves

*Check and operate all regulator station valves and valves required to isolate station in an emergency. (Refer to Gas Standard and Specifications F-11 for maintenance schedules.)

If required, lubricate:

a) Bypass valves.

b) Isolating valves including valve upstream from pit or vault.

*c) Regulating valves.

CLASS B INSPECTION - INTERNAL

CLASS B INSPECTION

1. Pilot Regulators

a) Inspect pilot regulator filters, strainers, and dehydrators; clean or replace screens, elements, or filters.

b) Test pilot regulators for mechanical operation:

Proper rangeability, freedom and movement of linkage, and condition of diaphragm.

c) Inspect pilot valve and seat for scoring or wear.

2. Control Lines

a) Disconnect and clear loading, supply, static, vent and gage lines.

b) Remove restricting orifices and filters and examine or test for obstructions or foreign matter.

*Paragraph Revised
**Paragraph Added

3. Main Components

**The paragraphs that follow prescribe maintenance requirements for main regulators, standby regulators, monitors, relief valves, and automatic shutoffs, as applicable.

a) Expansible Tube Valves

Disconnect body and remove core and tube. Inspect core and tube for evidence of abrasion, erosion, penetration, or delamination. Disassemble further as necessary if there is evidence of trapped foreign material.

b) Cage Type Valve Assembly

Remove cage type assemblies and examine disc and seats for wear or misalignment.

c) Plug or Ball Type Valve Assembly

Refer to Gas Standard F-11 and manufacturer's recommendation for lubrication guidance.

d) Linkage

Disassemble sufficiently to inspect condition of linkage. Manually manipulate linkage to determine excessive wear, friction, or resistence to motion at packing glands, o-rings, bearings, and bushings. Examine cams, shafts, stems, levers, and bearings for wear and scoring.

e) Diaphragm and Chamber

Inspect diaphragm assembly for leakage by applying gas pressure not exceeding normal diaphragm operating pressures through the static or pilot connections. Use an indicating gage to detect test pressure loss.

1) If pressure loss occurs, soap test bolt circle flange before disassembling diaphragm head to complete inspection.

2) Examine diaphragms for pliability, abrasion, rupture, or separation. Replace leather with synthetic diaphragms.

4. Equipment Position

At the completion of every inspection, make certain that all valves and equipment are returned to the normal operating position.

62-7501 REV. 4-65

PACIFIC GAS AND ELECTRIC COMPANY
STANDARD PRACTICE

STANDARD PRACTICE NO. 464-2

EXECUTIVE OFFICE OR DIVISION GAS OPERATIONS

PAGE NO. 1 EFFECTIVE 9/1/82

ISSUING DEPARTMENT GAS DISTRIBUTION

REPLACING PAGE NO. 1 EFFECTIVE 12/1/72

SUBJECT:

DISTRICT REGULATOR STATION MAINTENANCE

GAS MEASUREMENT AND CONTROL MANUAL SECTION 13

PURPOSE

1. To establish a uniform policy for the inspection, testing, maintenance and associated record keeping of district regulator stations.

POLICY

2. District regulator stations shall be periodically inspected, tested and maintained.

SCOPE AND DEFINITION

3. District regulator stations are the pressure control devices and their appurtenances, within the transmission and distribution system, which limit and control pressures to distribution mains that serve 3 or more customers. Pressure regulating stations at customer meters, compressor stations, and at major gas control and pressure regulation centers are excluded from this standard practice.

RECISSIONS

4. All previous letters and instructions in conflict with this standard practice.

REFERENCES

5. S.P. 460-21.6, Vault Inspection Procedure.
S.P. 570-22, Inspection and Calibration of Test Gages.
Gas Standards and Specifications F-11.

RESPONSIBILITY

6. It shall be the responsibility of the supervisors in the Division and Pipe Line Operations, who direct the maintenance and operation of the facilities, to establish and maintain procedures to comply with this standard practice.

APPLICATION

7. Procedural details and supplemental data appear in addenda to this standard practice.

Supplement - Procedural Details
Appendix - District Regulator Station Inspection, Testing and Maintenance Work

ISSUED BY: J. B. STOUTAMORE
Manager, Gas Distribution

APPROVED: H. M. McKINLEY
Vice President - Gas Operations

* Paragraph Revised
** Paragraph Added

(SEE OVER)

PROCEDURAL DETAILS FOR INSPECTION, TESTING, AND MAINTENANCE OF DISTRICT REGULATOR STATIONS

GAS MEASUREMENT AND CONTROL MANUAL SECTION 13

INSPECTION SCHEDULES

SCHEDULES

*8. District regulator stations shall be inspected according to the following schedules:

a) HPR type district regulator stations:

1) Class A Inspection at intervals not to exceed 12 months if serving three or more customers.

2) The inspection schedule for HPR sets serving less than three customers is not covered by this standard practice.

b) All other district regulator stations:

1) Class A Inspection at intervals not to exceed 12 months.

2) Class B Inspection at intervals not to exceed 24 months; however, internal inspection of expansible tube valves may be extended to intervals not to exceed 48 months at stations where experience justifies such extension.

*These schedules establish minimum maintenance requirements and maximum time intervals. When conditions require more frequent inspections, a shorter interval shall be established by the supervisor. Where practicable, inspections shall be scheduled to coincide with other work to be performed. The various steps of test, inspection, and maintenance shall be combined when possible.

*All district regulator stations shall be entered in the Facility Maintenance master file (GASFM REVIEW LIST), showing the maintenance to be performed and the established intervals. It is necessary to enter maintenance activities as performed to insure up-to-date GASFM output schedules.

INSPECTION PROCEDURES

PROCEDURES

*9. Prior to entering any pit or vault, observe the necessary precautions regarding barricading, sources of ignition, and checking for combustible gases, in accordance with applicable PGandE accident prevention rules.

Inspection procedures are divided into two categories designated "External" (Class A) and "Internal" (Class B). The work to be performed under each classification is listed in the Appendix. Class A inspections can usually be performed with the set in service. Class B inspections will require taking the unit out of service and disassembly of its component parts to allow inspection. Performance of Class B inspections will include a complete Class A inspection.

Normally, the inspection cycle for a station shall not be changed. However, if a nonscheduled complete inspection is made, a new cycle may be established.

*Paragraph Revised
**Paragraph Added.

PROCEDURAL DETAILS FOR INSPECTION, TESTING AND MAINTENANCE OF DISTRICT REGULATOR STATIONS

GAS MEASUREMENT AND CONTROL MANUAL SECTION 13

INSPECTION PROCEDURES (cont'd)

PROCEDURES

If only a partial inspection is made, the work performed at that time need not be repeated at the next scheduled inspection. However, the maximum interval between complete inspections shall not exceed those prescribed by Paragraph 8.

10. The inspection, testing and preventive maintenance work described in Paragraph 8 is detailed in the Appendix with corresponding letter-number designations on Form No. 62-6321 "District Regulator Station Maintenance Record".

11. At any stage of inspection, steps shall be taken to correct deviations from proper operation. A district regulator station is considered operating properly when:

    a) the regulator is controlling the set pressure in a stable manner throughout the normal range of flows and normal inlet pressure variations;

    b) all components are adequate from the standpoint of reliability, capacity, and safety; and,

    c) all station equipment is free of leakage, in good mechanical condition, and capable of being operated by authorized persons at any time.

    *If acceptable operation as described above is not obtained the problem shall be determined and corrected as required. Retesting shall be done to insure that proper operation has been achieved.

12. Regulator station housekeeping, which includes freedom from debris, weeds, water (either in pits or yards), condition of paint (on mechanical piping and structures), security of fencing, vaults and enclosures shall all be maintained as required for good operating practice.

PRESSURE RELIEF AND PRESSURE LIMITING EQUIPMENT

PRESSURE RELIEF AND LIMITING EQUIPMENT

13. a) Each pressure relief or limiting device or related group of such devices must be checked annually for adequate overpressure capability in compliance with Section 192.201 of CPUC General Order 112D, and Paragraph 13 (c) below.
    This may be done by:
    1) Checking for proper operating settings of monitor regulators and automatic shutoffs; and proper liquid levels of liquid seal reliefs.

    *2) Physically testing relief valve(s) for proper pressure setting to limit pressure to the required level.

    3) Making an office review and calculation to verify that under operating conditions, the relief valve has the proper setting and capacity to limit pressure to the required level.

*Paragraph Revised
**Paragraph Added

b) Such a review shall also be made when equipment changes or load or pressure conditions alter the capacity of the regulator or the capability of the relief valve to limit pressure buildup.

*c) Relieving capacity installed in conjunction with parallel regulators shall be adequate for:

**1) A simultaneous "fail open" condition of both the working and standby regulator runs for stations constructed or reconstructed after July 1972.

**2) A "fail open" condition of the regulator run with the largest capacity for stations constructed prior to August 1972.

*d) A review of all stations shall be made to indicate and correct those conditions which are substandard in regard to Sections 192.199, 192.201, 192.203, and 192.181(b), (c) of General Order 112D.

RECORDS

RECORDS

*14. A "District Regulator Station Data Sheet", Form 62-6271, shall be prepared for each district regulator station and filed in the district operating office. Station numbers shall be assigned and a data sheet prepared to cover each stage of regulation.

*15. A record of district regulator inspection and maintenance shall be prepared and filed in the district operating office, using "District Regulator Station Maintenance Record", Form 62-6321. Where a relief valve is used for overpressure protection, a record shall be maintained of the annual capacity check of these facilities required by G.O. 112D Section 192.743. A continuous maintenance record shall be retained for 5 years or for the life of the facility, whichever is less.

16. Pressure recording charts used in district regulator pressure tests shall be filed in the district operating office and retained for a minimum period of two years.

TEST SCHEDULE AND CONTROL

SCHEDULE AND CONTROL

*17. Supervisors shall schedule the inspection and maintenance of district regulator stations as required to comply with this standard practice.

ATTACHMENTS

Appendix - District Regulator Station Inspection, Testing and Maintenance Work.

*Paragraph Revised
**Paragraph Added