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O&M Section # 14	SCUD Task # 130
Section: Construction/Operations	Revision Date: 09/06/16

Excess Flow Valve (EFV) Installation

SCOPE AND PURPOSE

This procedure is to provide personnel information for selecting, installing, maintaining, and documenting Excess Flow Valves (EFVs).

RESPONSIBILITY

The Service Line Supervisor, or other designee, is responsible to ensure that installing an EFV is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

EFV
Fusion Equipment

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

GENERAL

The United States DOT required gas distribution utilities to have an EFV program effective February 3, 1999. Since then, Congress has specified in the 2006 Pipeline Safety (PIPES) Act that all operators of gas distribution systems install EFVs in SFR (Single Family Residence) services in lieu of customer notification. This change went into effect in June 2008. In April 2017 The United States DOT expanded the use of EFVs to branch service SFRs and some commercial services, effective April 14, 2017. The applicable DOT requirement is 49 CFR 192.383. EFVs are spring operated and control the flow of gas through a service line when the flow rate exceeds a predetermined quantity. EFVs must perform to the requirements of 49 CFR 192.381. As such, careful sizing of the EFV is critical. EFVs are typically installed in a coupling and activate when a gas service line is severed due to a dig-in. All EFVs supplied must meet the requirements of ASTM F-1802 and ASTM F-2138. The EFV has a bleed-by mechanism that will reopen the EFV when the pressure on both sides equalizes.

S C U D will give all customers notice of the option to request an EFV installation, except where such installation is not required under § 192.383(c) (i.e., where the service line does not operate at a pressure of 10 psig or greater through the year, the operator has experienced contaminants in the gas stream that could interfere with EFV operation, an EFV could interfere with operation and maintenance activities, or an EFV meeting performance standards in § 192.381 is not available).

APPLICATION

EFVs shall be installed on the following types of services with a main pressure greater than or equal to 10 psig. Install EFVs on services as close as practical to the main.

- (1) A single service line to one Single Family Residence (SFR);

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- (2) A branched service line to a SFR installed concurrently with the primary SFR service line (*i.e.*, a single EFV may be installed to protect both service lines);
- (3) A branched service line to a SFR installed off a previously installed SFR service line that does not contain an EFV;
- (4) Multifamily residences with known customer loads not exceeding 1,000 SCFH per service, at time of service installation based on installed meter capacity, and
- (5) A single, small commercial customer served by a single service line with a known customer load not exceeding 1,000 SCFH, at the time of meter installation, based on installed meter capacity.

The EFV shall be sized and installed in accordance with the manufacturer's charts and instructions. The EFV must be sized to handle the expected gas load it will be supplying. The excess flow valve shall be located as close to the main or lateral as practical. The EFV, service line and/or riser shall be documented and mapped to identify the presence of an excess flow valve.

Exceptions: S C U D need not install an excess flow valve if one or more of the following conditions are present:

- (1) The service line does not operate at a pressure of 10 psig or greater throughout the year;
- (2) The operator has prior experience with contaminants in the gas stream that could interfere with the EFV's operation or cause loss of service to a customer;
- (3) An EFV could interfere with necessary operation or maintenance activities, such as blowing liquids from the line; or
- (4) An EFV meeting the performance standards in §192.381 is not commercially available to the operator.

S C U D must install either a manual service line shut-off valve or, if possible, based on sound engineering analysis and availability, an EFV for any new or replaced service line with installed meter capacity exceeding 1,000 SCFH.

LIMITATIONS

- (1) Do not install EFVs on steel services. Replace these services with PE services.
- (2) EFVs are not required on systems that can have a minimum pressure below 10 psig. Low-pressure systems and high-pressure systems are included in this category. Contact the Engineering Department for assistance in determining if any services would be excluded from the EFV program.
- (3) EFVs are required on services that are replaced or repaired in an emergency short lead-time basis, with the need to restore service ASAP, but the EFV may be installed at a later time, as soon as practical during working hours. Service replacements to repair Grade 1 leaks are included in this category. At this point, the excavation is usually already open and the work must be completed quickly.
- (4) EFVs shall not be installed on service lines with contaminants in the gas stream, where these contaminants could be expected to cause the EFV to malfunction or where the EFV would interfere with the necessary operation and maintenance activities on the service, such as blowing liquids from the line.

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INSTRUCTIONS

Selecting a location for the EFV to be installed on the service line

The EFV should be located as near as practical to the fitting connecting the service line to its source of gas supply. Examples of acceptable locations include installing an EFV that is built into the service tee, installing a short section of pipe between the service tee and the EFV to allow for the pipeline to be squeezed off upstream of the EFV, and installing an EFV out from under pavement to facilitate future access. Operators may use reasonable judgment in determining the most appropriate location for an EFV.

Selection Instructions

When selecting an EFV for installation at a specific location, the operator must consider the minimum operating pressure, maximum load, service line length/diameter, and future load growth. The following are the steps in sizing and selecting the proper EFV.

- (1) Verify the minimum operating pressure for that location and record this pressure in the design calculations.
- (2) Determine the length of the service from the EFV installation point to the service regulator/meter and record in design data.
- (3) Determine the initial natural gas load and consider reasonable future load increases as logically as possible. Record in design data.
- (4) Determine the diameter of the service line.
- (5) Reference the Manufacturer's Performance Charts (attached) and make a selection based on an EFV that conforms to the design objectives.

General Installation Instructions

See the attached Manufacturer's General Installation Instructions.

Instructions for Functional Flow Test, Commissioning, and Reset

See the attached Manufacturer's Instructions.

REPORTING/NOTIFICATION

On the annual report for gas distribution systems, the number of EFVs installed each calendar year and an estimate of the total number of EFVs in service are required to be reported.

Mapping Instructions

- (1) EFVs shall be mapped on the gas service line as-built drawings to show the location and existence of the installed EFV.
- (2) This information is then mapped by the Engineering Department and the entered into the Customer Information System by the Billing Department to indicate an EFV at the meter location.

RELATED PROCEDURES

CONST010 – Joining of Plastic Pipe - Electrofusion