TYPES OF EXCESS FLOW VALVES

Presently there are two types of EFVs based on operating characteristics as follows:

- EFVB: Automatic. When selecting an EFVB, which provides automatic reset, consideration should be given to the reset time and the volume under the worst-case system conditions.
- EFVNB: Manual. The EFVNB may be used to provide complete shutoff of all gas flow. Once activated, a manual reset capability should be available, such as back-pressuring the line. The maximum leakage through an EFVNB should be in accordance with MSS SP-115.

Some EFV tips are as follows:

- During or prior to installation, dirt, liquid, or other contaminating foreign material should not be allowed to enter the EFV.
- Ensure the EFV is properly oriented with the direction of gas flow.
- Exposure to heat when performing such tasks as tie-ins or coating applications should be controlled so as not to adversely affect the EFV.
- When performing a pre-installation pressure test through the upstream lateral tee, a rapid re-pressurization of the line should be avoided because such action may damage or close the downstream EFV.

EFV Selection tips

Need to know:

- ***Operating pressure***
- ***Length of service***
- ***Natural gas load – present/future***
- ***Service Line Diameter***

According to one EFV manufacturer, selection should consider minimum operating pressure, maximum load, service line length/diameter and future load growth.

Selection Steps:

1. *When selecting an EFV for installation at a specific location, the operator must 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. *Manufacturer selection information can usually be found on the internet or obtained from your material supplier. Make your selection based on an EFV that conforms to the design objectives*

Example:

New house at 409 Freeway Drive (south side of street).

KNOWN:
2-inch main on north side of street, minimum operating pressure 20 pounds per square inch.
Pipe length from main to house meter location – 105 feet.
Natural gas load – 175 scfh.
Estimated total future load – 250 scfh.
Service line diameter – ½"CTS, internal diameter – 0.436"

FIND: UMAC excess flow valve appropriate for known conditions

The UMAC performance charts and technical tables can be found at
http://www.umac.com/customer.cfm

According to UMAC EFV Technical Tables for ½" CTS service line at a pressure of 20 psi, a Series 300 can protect up to 280 feet of service line. Our service length is 105 feet, well within the 280 foot maximum.
According to the performance characteristic for the Series 300 at an operating pressure of 20 psi the nominal minimum trip point (flow at which valve will close) is 540 scfh, the present and estimated future loads of 175 and 250 are well within the minimum trip flow.
Our selection would be the UMAC Series 300 with bypass capability.

New house at 409 Freeway Drive (south side of street).

KNOWN:
2-inch main on north side of street, minimum operating pressure 20 pounds per square inch.
Pipe length from main to house meter location – 105 feet.
Natural gas load – 175 scfh.
Estimated total future load – 250 scfh.
Service line diameter – ½"CTS, internal diameter – 0.436"

FIND: Perfection EFV appropriate for known conditions

Based on the Elster Perfection Calculator, the Perfection 400 scfh model has a minimum trip value of 400 scfh and can protect up to 251 feet of service line from the main* to the meter under the above conditions.
The service line length of 105 feet is well within the maximum protected length of 251 feet.
The projected flow of 275 scfh is within the minimum trip flow of 400 scfh.

The website where information regarding Perfection excess flow valves can be accessed is: http://www.perfectioncorp.com. It is our understanding that information regarding how to obtain the design calculator can be found on the Perfection website.

KNOWN:
2-inch main on north side of street, minimum operating pressure 20 pounds per square inch.
Pipe length from main to house meter location – 105 feet.
Natural gas load – 175 scfh.
Estimated total future load – 250 scfh.
Service line diameter – ½"CTS, internal diameter – 0.436"

FIND: Lyall EFV appropriate for known conditions

Based on the R.W. Lyall & Company, Inc. Calculator, the Series 350 has a minimum trip value of 415 scfh and can protect up to 413 feet of service line from the main* to the meter under the above conditions.
The service line length of 105 feet is well within the maximum protected length of 413 feet.
The projected flow of 250 scfh is within the minimum trip flow of 415 scfh.
The website where information regarding R.W. Lyall excess flow valves can be accessed is: http://www.rwlyall.com/products/ng/excessflow.php The calculator can be accessed on the website along with performance charts.
**** The length of service line is actually from the EFV to the meter, however, the EFV should be placed as close to the main as practical.***

It is important for each operator to understand that the examples and guidance provided herein are intended to make the operator aware of the basic process in selecting excess flow valves for installation in his/her system and that one model or size does not fit all applications. Each service line project has its own set of variables and conditions. Each operator must apply sound engineering practice in determining the appropriate excess flow valve for each installation. If the operator does not feel confident in his/her ability to correctly interpret the variables or manufacturer information to select an excess flow valve for a particular application, please contact the manufacturer or a consultant.
If an operator independently selects excess flow valves for his/her system, we strongly suggest that the person responsible for this task follow the above examples and contact this office with questions. In addition, there is no intent to suggest that the excess flow valves provided by the manufacturers referred to in the preceding examples are in anyway more acceptable than excess flow valves provided by other manufacturers. These manufacturers were used because the office has been provided with their product information.