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PSV. CHEMICAL DOSING SYSTEM

Pedro Maria Gonzalez
Industrial Engineer, Environmental Expert

I HAVE A SMALL CHEMICAL DOSING SYSTEM (1L/H). 1+1 DIAPHRAGM VALVES. THERE ARE INSTALLED PRESSURE SAFETY VALVES . CLIENT ASKS FOR ISOLATION/DRAIN VALVES IN DISCHARGE OF PSV. THESE PSV GO TO AN ATMOSPHERIC TANK). COULD YOU GIVE ME YOUR FEEDBACK? IS IT USUAL FOR SUCH SMALL APPLICATIONS? API 520 IS APPLICABLE

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3 comments



Wilfredo

Wilfredo Garcia
Process Specialist at Ecopetrol

Hi Pedro,

As far as I understand, the question from the client is regarding maintenance of PSV, what you have to investigate with the chemical injection package vendor is the maintenance routine for this system.

Cheers,

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Ashraf

Ashraf Abufaris
Process Engineer at Petrofac

Dear,

It depends on where these PSVs are located.

1. If free draining requirement is specified for the outlet line of the PSV, then the PSV will be located above the tank level to maintain this requirement and you don't need a drain line since it is free draining (recommended)
2. If you design your PSV for the liquid static head in the outlet line and locate your PSV below tank level then a drain line is required for the PSV maintenance.

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Saeid Rahimi Mofrad
Senior Specialty Process Engineer at Fluor
Top Contributor

With regards to isolation, it is not what you can find in API 520.

As a general design practice in such applications (where injection pumps are 100% spared), inlet isolation valve is not needed. This is because this kind of equipment can be put out of service whenever the relief valve maintenance is required. You can switch the pump and isolate the pump at suction and discharge side before removing the relief valve.

The requirement of isolation valve on the relief valve outlet line depends of the piping configuration and type of chemical. For example, if the relief valve outlet line is directly routed to atmosphere, block valve is not required. If the relief valve outlet line are joining together before going back to the suction tank, individual isolation valve is required to prevent leakage when one the relief valves is removed for maintenance.

If the chemical is extremely hazardous, you need proper drain to ensure safe removal and maintenance of the relief valve.

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