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### Pump vent line

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Dears,

I have a question about pump casing vent line. usually there is a vent line for pumps that are not self venting and connects to closed drain header for pumps that handle toxic /non stabilized hydrocarbon. The purging with nitrogen will be done for all process units during first start up and so opening of pump vent line to closed drain is acceptable but during normal operation, after pump maintenance because of any malfunction, and for putting the pump in operation, we open vent line of pump casing which has been occupied with air to closed drain header

without any purging with N2. Is it allowable to send a bit amount of air to closed drain? for canned type pumps that have large casing, is it allowable to send casing air to closed drain without purging of casing with N2?

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2 comments



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Mojtaba

Closed drain network floats on LP flare network and is subjected to contineous purge gas injection. So what is your main concern?

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Sending such amount of air to flare considering the mixing and dilution effect of flare purging stream should not be a problem. However, I read somewhere that the concentration of oxygen should be maintained below 6%. So using this, you can check if this amount of air can create a combustible mixture at stack or not.

However, purging air (after maintenance) before letting liquid hydrocarbon in is a "must" when contamination with air is not tolerable or fluid is above its auto ignition temperature (AIT). In these cases, a proper utility connection (UC) and vent valve to ATM (like what we have for pressure vessels) shall be provided for bringing the pump safely in service after maintenance.

For canned pumps, a UC is anyway needed for evacuating the liquid content of can (concrete pit underneath the pump) to drain system. The same can be used for purging air out of the system through vent after maintenance. If there is no vent on can, a pressure gauge tapping on the discharge of pump can be used for venting.

In past few projects for pumps in hydrocarbon services, we provided a 1" valve with blind at suction close to suction isolation valve for purging the pump section after draining the liquid to drain system (just before opening the pump) to make it hydrocarbon free. We were not concerned about sending air to flare after maintenance however the same connection along with a small bore connection (PG) at pump discharge side can be used for air purging as well.

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