



## Chemwork

**Discussions**

Members

Search

Manage



[Unfollow Ashraf](#)

### Is it safe to route continuous source to closed drain drum

**Ashraf Abufaris**

Process Engineer at Petrofac

In a recent project the liquid stream from compressor suction drum is routed to closed drain drum due to low pressure and unavailability of other system that operates at lower pressure. My question is it safe to route this liquid continuously to closed drain drum. Please share your experience

Like (1) • Comment (17) • Share • Follow • Reply Privately • 11 months ago

[Add to Manager's Choice](#) • [Close Discussion](#)

#### Comments

[Mehdi Keivani](#) likes this

17 comments • [Jump to most recent comment](#)



S M

**S M Kumar**

Process Design Consultant

It is done. If you state or elaborate further, any safety or other issue you foresee, it is easy to understand the situation. CD contents are usually pumped back into process systems. It is a CLOSED loop.

Like • Reply privately • Delete • 11 months ago



Ashraf

**Ashraf Abufaris**

Process Engineer at Petrofac

Dear Mr.Kumar thank you for replying. My concern is routing a continuous stream to a system that is meant to be used for draining during maintenance/ emergency. Is that acceptable ?? Is there any safety issues and if any what are they safeguards ?

Like • Reply privately • Delete • 10 months ago



S M

**S M Kumar**

Process Design Consultant

Ashraf: Thanks for the clarification. It is done and acceptable. As mentioned in my last posting, it is a standard closed loop with liquid content to respective HC/ Water systems and vapour to vent/ LP flare.

Like • Reply privately • Delete • 10 months ago



Lutfhi

**Lutfhi L**

Offshore Operation Engineer at Pertamina Hulu Energi ONWJ Ltd

Ashraf,

Normally, liquid from suction scrubber is almost negligible because separation of gas and liquid already taken place in production separator (upstream of suction scrubber). That is why, size of liquid outlet line from suction scrubber is only 2".

Like • Reply privately • Delete • 10 months ago



Zulkernain

**Zulkernain Mat Adam**

Experience Process Engineer

Ashraf, even though the liquid is continuously being drained, but it is normally in auto mode (auto drainage), means that the liquid will only be drained when the liquid level is high (long period to

achieve this).. as what Mr. Luthfi has quoted, the liquid amount is almost negligible.

Like • Reply privately • Delete • 10 months ago



Zulkernain

**Zulkernain Mat Adam**

Experience Process Engineer

Similar concern and argument if we use instrument gas instead of instrument air in our plant / facility. We will normally drain the instrument gas scrubber continuously to Closed Drain Vessel.

Like • Reply privately • Delete • 10 months ago



Fahad

**Fahad Al-Sadoon**

Process Engineer at Petrofac Engineering Ltd

Are you routing the condensate from your scrubber using control valve or auto-drain valves? You might want to consider the consequences of having the drain valve failing open or failing in close position. Anyway, I am sure you will discuss this during HAZOP

Like • Reply privately • Delete • 10 months ago



Zulkernain

**Zulkernain Mat Adam**

Experience Process Engineer

Control valve shall not be used for minimal / negligible amount of liquid / condensate.

Like • Reply privately • Delete • 10 months ago



S M

**S M Kumar**

Process Design Consultant

I notice the emphasise on small quantity of liquid. Should it matter? As long as it is a closed loop with liquid and vapour paths suitably sized for the flow, it is as good as any other vessel, say Inlet Sep.

Like • Reply privately • Delete • 10 months ago



Zulkernain

**Zulkernain Mat Adam**

Experience Process Engineer

Mr. S M Kumar;

It is not a normal practice to dump the liquid directly to CD. CV vessel is means for other vessel maintenance only where the vessel shall be depressurized and the related liquid in the vessel is to be drained into CD Vessel. Unless the amount of liquid is very minimal or negligible.

Like • Reply privately • Delete • 10 months ago



S M

**S M Kumar**

Process Design Consultant

Good point

Like • Reply privately • Delete • 10 months ago



Azhar

**Azhar Ali**

Process Professional at Aker Engineering Malaysia

Ashraf, may I add/elaborate here based on previous projects that I did.

Same as what others have commented, the liquids coming from the compressor suction scrubber is small and hence an on/off type control valve is usually selected (a throttling type will be selected if a lot of liquids is generated).

Routing it "continuously" will mean that upon liquid at level high (LAH, in the sump) will trigger the liquid outlet valve to open until it closes upon reaching level low (LAL).

Hence, even at level low, a liquid seal will always be there to prevent this pressurized gas from short circuiting to the closed drain system (CD vessel).

This gas short circuiting is called a gas blowby, which is dangerous in a way that it will overpressurized the closed drain system & overload the flare.

But this will normally be prevented from happening by the shutdown valve (SDV) when level low low (LALL) is triggered before the liquid seal is gone. Hazop will address this.

Like • Reply privately • Delete • 10 months ago



**Ashraf Abufaris**

Process Engineer at Petrofac

Dear all, thank you for your valuable comments. I think I should give more explanation to my concern to drive this discussion. I am not worried about gas blowby case since the vent line

Ashraf connecting the closed drain drum to flare is sized for that case as well as the flare system. But my concern is the impact of this continuous drain on maintenance activity that may be done on a single equipment that is connected to this drum and what extra measures operators should take. I fully agree that quantity of liquid is marginal but still it might happen that the on/off valve is open while operators are draining from other source. I hope this clarify my concern.  
Like • Reply privately • Delete • 10 months ago



Ir.  
Hasnafizi  
Md

**Ir. Hasnafizi Md Hanafi, PEng**  
Senior Process Engineer at Technip Geoproduction (M) Sdn Bhd

SHELL DEP does not allow to route any continuous liquid line to CD. They had even removed the use of CD for maintenance drain in the latest DEP ie 2010 revision due to safety reason. If you are working on shell project, please bare this in mind  
Like (1) • Reply privately • Delete • 10 months ago

👍 Azhar Ali likes this



Zulkernain

**Zulkernain Mat Adam**  
Experience Process Engineer

Hasnafizi;  
So for vessel maintenance, where the liquid will be routed to if CD is no longer be allowed for maintenance drain. Please elaborate..  
Like • Reply privately • Delete • 10 months ago



Ashraf

**Ashraf Abufaris**  
Process Engineer at Petrofac

Can you please mention the shell DEP number which states this requirement. Thanks  
Like • Reply privately • Delete • 10 months ago



Ir.  
Hasnafizi  
Md

**Ir. Hasnafizi Md Hanafi, PEng**  
Senior Process Engineer at Technip Geoproduction (M) Sdn Bhd

DEP 37.14.10.10 section 2.3.3.

"Closed maintenance drain systems SHALL [PS] not be installed in new facilities or as a modification to existing systems. Where by virtue of fluid characteristics (e.g. volatility, toxicity, impact on water treatment systems, temperature, value) it is desired to fully contain, segregate or recover fluids, these systems SHALL [PS] be designed as part of the overall process system as a process drain (2.3.4), with suitable engineered barriers against hazards. Equipment and piping shall be of a consistent standard with the standards for the installation:.

The '[PS]' means a deviation requires TA0 approval (the highest technical ranking in shell and only available in few countries). In my recent shell project, we had provided spare connections at the bottom of vessel for operator to connect a flexible hose to drain it to other lower pressure vessel/tank.

Like • Reply privately • Delete • 10 months ago

Add a comment...

Send me an email for each new comment.

Add Comment