



Level Control on Well head stack Knock Out Drum

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Affan

we are going to install a small knock out drum on well head vent stack line. the drum is of hardly 0.6 m dia. will be in particular in operation during dewatering operation at well heads. Liquid is expected to accumulate at bottom of the drum. i am looking for some reliable liquid level control mechanism. LVs can not operate due to unavailability of 24 v DC or any pneumatic supply.

normally one psi liquid head is available, so operation of auto drainer or float valve is unlikely. please share your suggestions for reliable level control scheme.

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Saeid Rahimi Mofrad
Senior Specialty Process Engineer at Fluor

I guess you can drain the liquid through liquid seal to sewer (atm). Top of the seal pipe should be set to maintain the desired liquid level inside the KOD. Depth of liquid seal should be at least 1.5 times of maximum operating pressure of flare KOD, in order to prevent draining seal pipe liquid (breaking seal) because of KOD pressure. Since flare KOD is usually installed with minimum elevation from grade, most probably you need deep excavation to install the major part of seal pipe which is underground. For example, depth of liquid seal for a KOD operating at 1.0 barg (max) is minimum 15m (based on water density). Hence, this method can be used if KOD back pressure at design relief case is not too high.

Don't forget the siphon breaker (vent) on the high point of seal pipe. Otherwise, KOD liquid content will be completely evacuated (once liquid flow is established) due to siphon effect and gas will start leaking to atmosphere instead of going to flare.

Regards

Saeid

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Saeid Rahimi Mofrad
Senior Specialty Process Engineer at Fluor

After posting above comment, I thought liquid hydrocodone release to sewer (open drain) may not be acceptable from safety point of view. Other alternatives can be:

1) KOD pump with diesel engine driver working based on on/off level controller. It starts at HHL and stops at LLL (automatic).

2) Vacuum truck with operator intervention to start/stop the pump manually at site based on level gauge

3) Draining to closed drain system through manual valve by operator based on level gauge reading. drain line hydraulic should be carefully checked to see if pipe size is big enough to pass the maximum liquid flow rate to KOD by gravity flow.

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