## VENT TO SAFE LOCATION

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**Principal Process Engineer at Petrofac (P.E.)**
**Top Contributor**

1) Is there any universal definition for SAFE LOCATION? What is the normal practice in oil and gas applications?

2) What kind of vent should be routed to safe location? I can identify some services based on my observation in different projects:

• Any gas at pressure higher than P bar (such as instrument air buffer RV outlet nozzle, Nitrogen PCV outlet line).

3) What could be P in your opinion? What is the pressure below which vent to safe location requirement can be waived?

• Hot gases (such as steam vents, how water expansion drum PCV outlet line)
• Toxic gases (not preferred) (such as analyzer vent)
• Flammable gases (not preferred) (such as low pressure hydrocarbon tank vent)
• Chemical tank vent

4) Is this list all right? Anything missing?

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Amir

**Amir Mofidi**
**Sr. Process Engineer at Wintershall**

For flammable gas cases, for instance the vent of a water degassing vessel, depending on the gas flowrate the dispersion/ radiation studies for the max. Gas flowrate e.g. Gas blow by from upstream equipment shall be performed. Then based on the generated contours the safe location can be determined in such a way that the instrumentation, electrical equipment and E&I room to be out of LEL.

One other item that you have perhaps forgotten, is the safe location for vaccuum breather valve. All your items concerns with vent to safe location, but for breathing do we need also to route the breather valve pipe to a safe location?

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S M

**S M Kumar**
**Process Design Consultant**
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1) Safe location: (a) Where you do not violate the area classification of electrical equipment. You do dispersion calc for the maximum flow thru the vent and check the area classification is OK (b) Where operators are unlikely to get a blast on their face when they walk around the plant - this calls for 3-5 m above any working area an operator is likely to be present

For non-HC streams (b) will govern. For HC streams both (a) and (b) and usually mid-point of flare boom in offshore facility

2)
• HC: Normally near atmospheric pressure gases such as compressor secondary seal vent;

caisson vent of both hazardous and non-hazardous open drain systems. These get piped to a common manifold.
• HC: automated Double Block and Bleed valve between 2 SDVs in fuel gas supply line to uswrs like gas turbines. These are locally vented at safe area.
• HC bearing H2S: from the bleed valve of a Double Block and Bleed arrangement.
• Instrument air/ plant air/ nitrogen vessel RV outlets as in b above + check for noise at operator areas. Nitrogen PCV outlet if no-HC present
• Hot gases (such as steam vents, how water expansion drum PCV outlet line)
• Toxic gases - analyzer vent. Usually to LP Flare
• Flammable gases - low pressure hydrocarbon tank vent. Usually to atmospheric pressure flare
• Chemical tank vent – if small tanks as in injection skids. Usually local to safe location

3) P? I have not seen P as the criteria as P gets dropped thru the last valve

4) Let us wait to hear from others

water degassing vessel. Usually to LP flare as gas blowby from u/s is possible

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Vagif Gafarov likes this

Vagif

**Vagif Gafarov**
**Sr. Process Engineer at KBR**

Interesting point as I remember from a HAZOP, a graduate engineer asked - why cannot we consider space inside of the living module as a safe location for HC gas vent... !? Everybody was confused ))

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