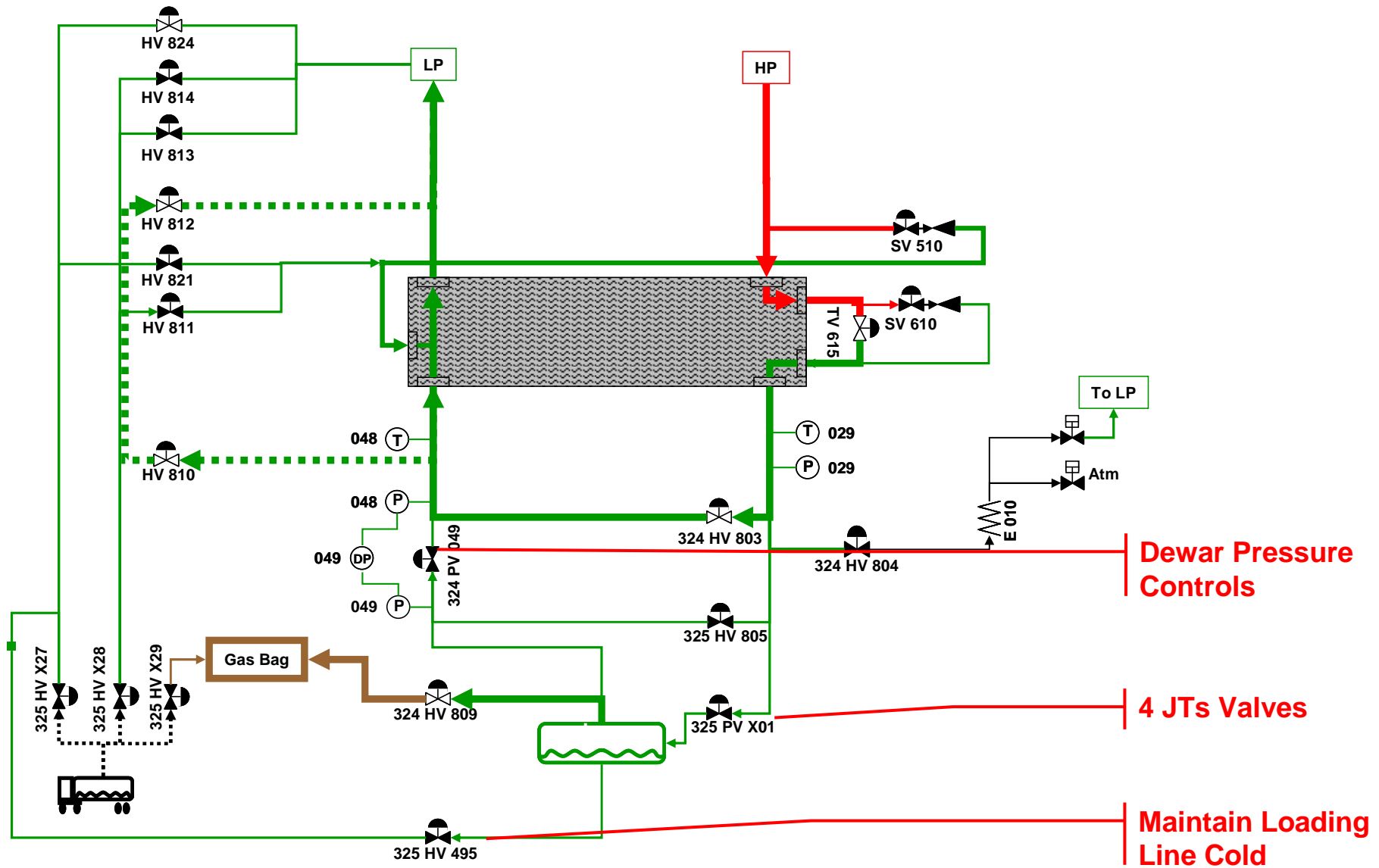


Helium Operators Familiarization Program Unit 324/325 – Connection to Storages

Dec 2012 | Vincent HELOIN



G301 Liquefier Connection



G301 Liquefier Connection

In case with connection with cold LHe Storage, Large amount of gas may be sent to the LP compressor.

This additional gas will be processed by the LP compressor and probably by the HP one.

The HP value (323PT810) may increase during the connection.

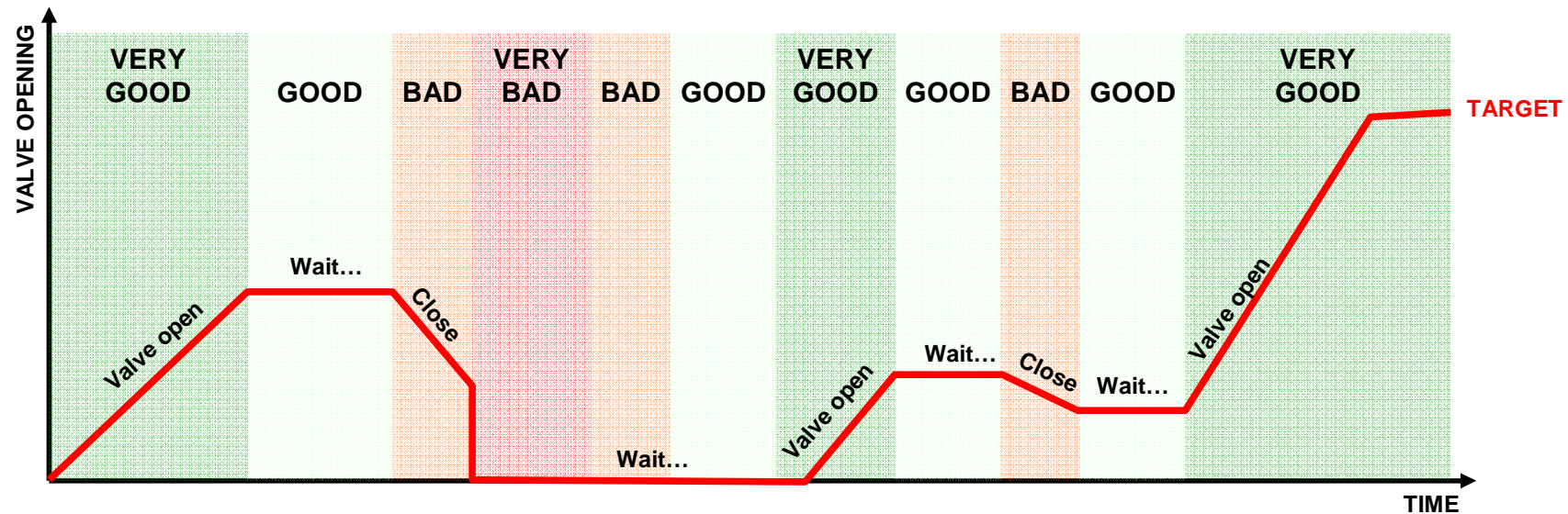
In order to evaluate if the connection goes well, PT810 is monitored as following:

- Very Good:** | 323 PC 810 SP - 323 PC 810 PV | < 100 mbar
- Good:** Between Very Good and Bad
- Bad:** | 323 PC 810 SP - 323 PC 810 PV | > 100 mbar
- Very Bad:** | 323 PC 810 SP - 323 PC 810 PV | > 250 mbar

G301 Liquefier Connection

The valve action, is the adapted according to the status

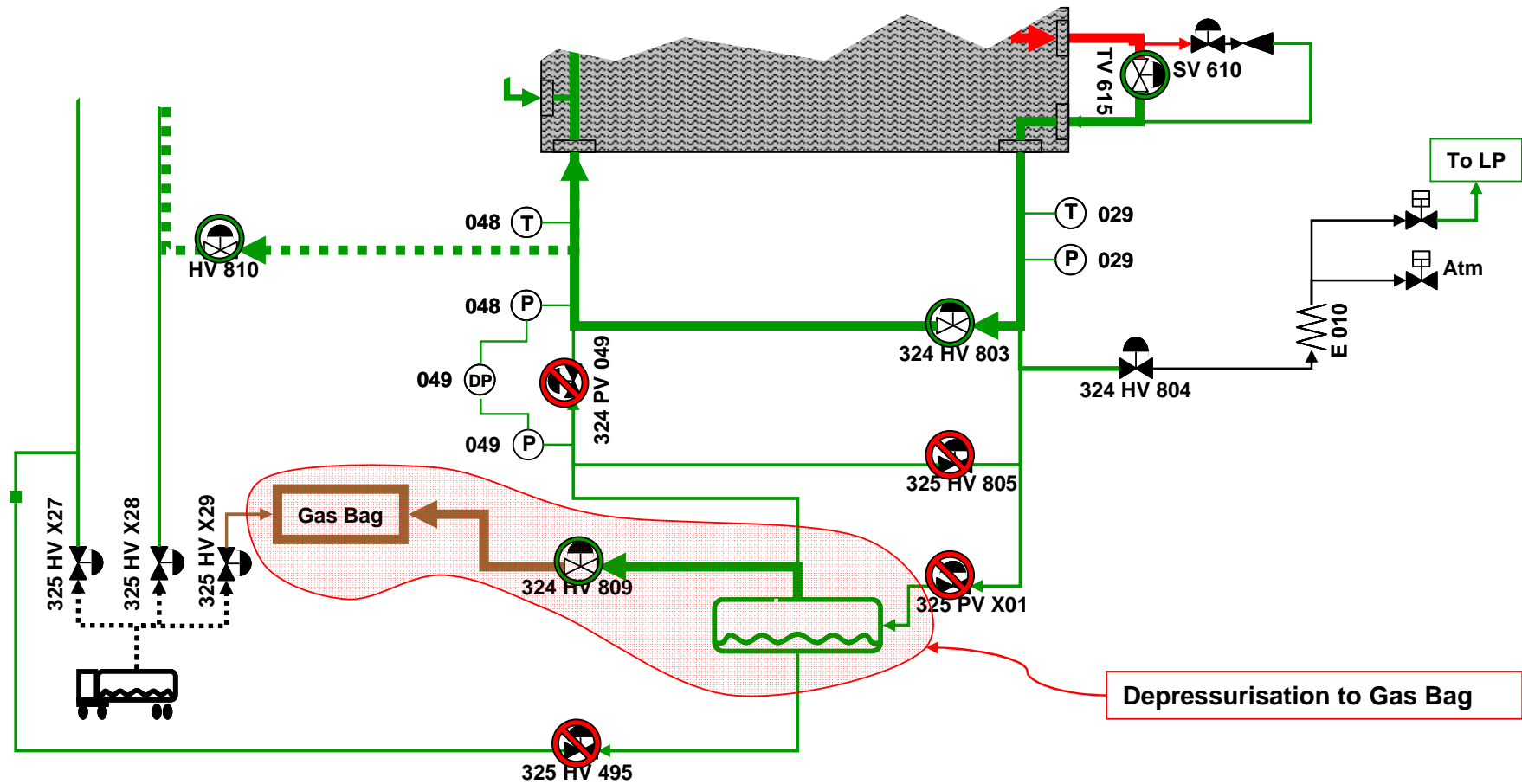
- **Very Good:** opens very slowly following a ramp.
- **Good:** The Valve is frozen, the position is maintained.
- **Bad:** The Valve closes slowly following a ramp.
- **Very Bad:** The Valve closes quickly with no ramp.
Several Open / Close cycle are expected



G301 Depressurization & Vapors Connections

STEP 100 :

Depressurization to gas bag using 324 PV 809: Until Storages are depressurized. (~1.15 Bara)

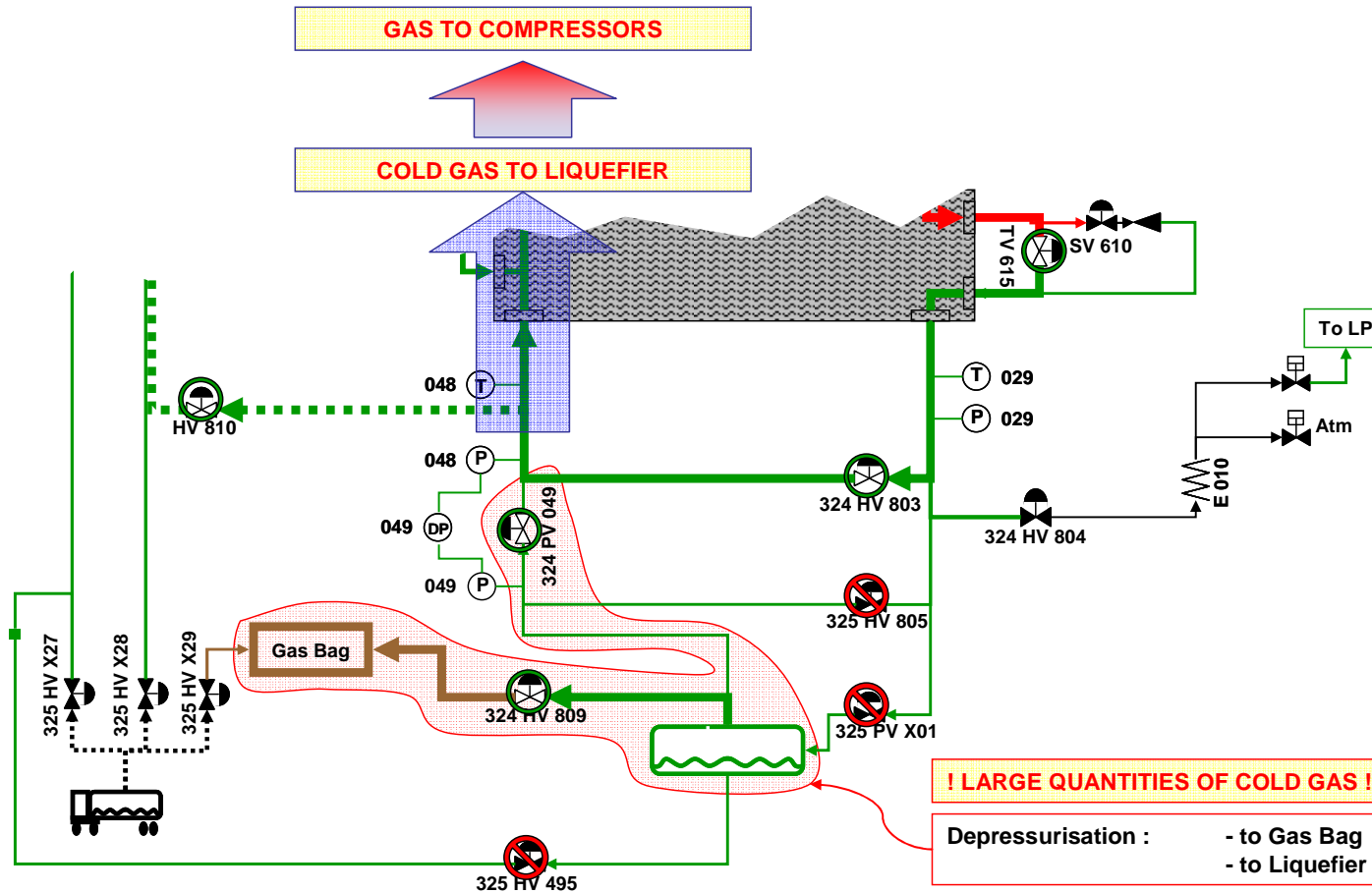


G301 Depressurization & Vapors Connections

STEP 110 :

- Depressurization to gas bag using 324 PV 809 continues.
- Depressurization to Liquefier using 324 PV 049: Until Storages are depressurized.

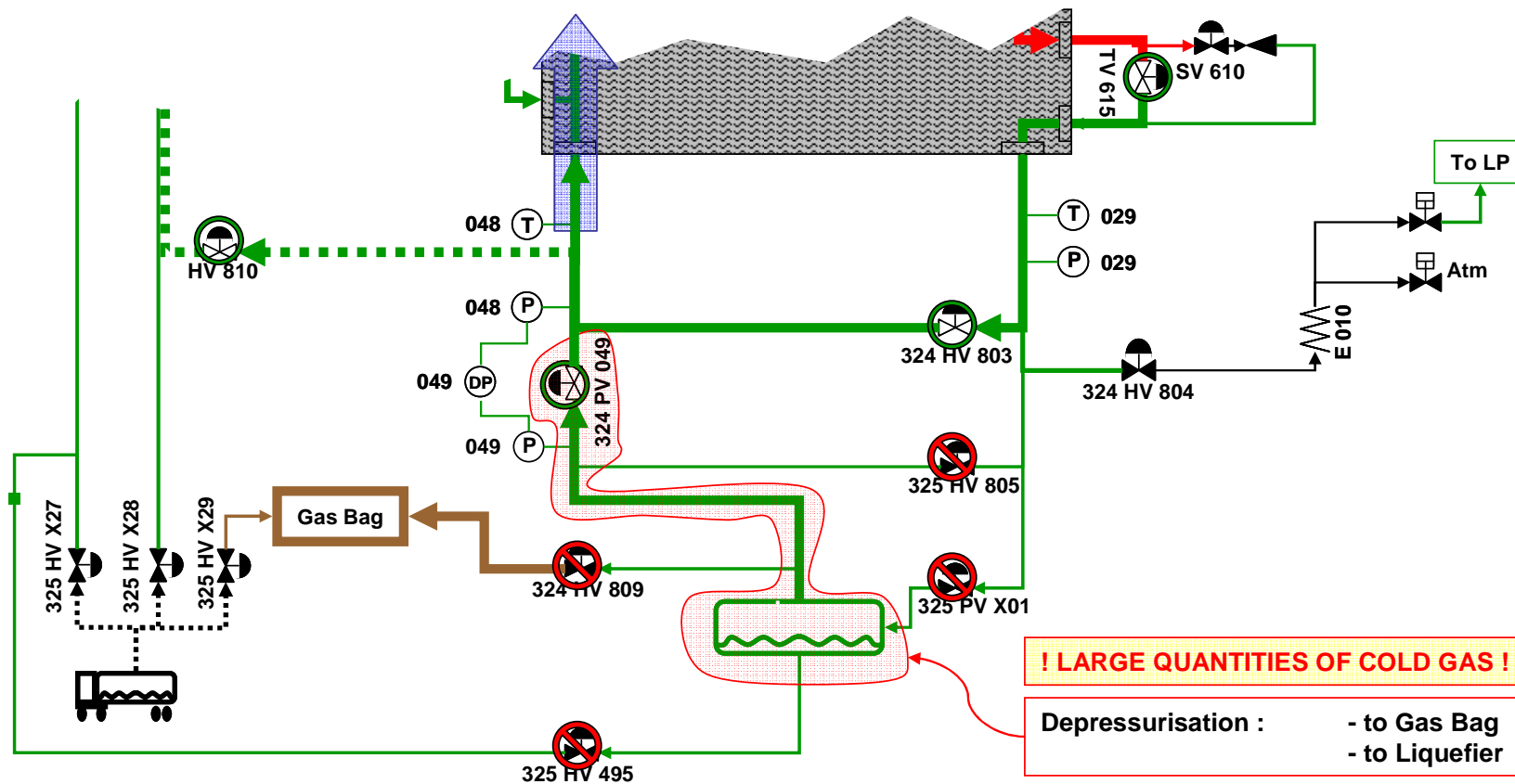
WARNING: LARGE QUANTITIES OF GAS CAN BE RETURNED TO LIQUEFIER.



G301 Depressurization & Vapors Connections

STEP 120 :

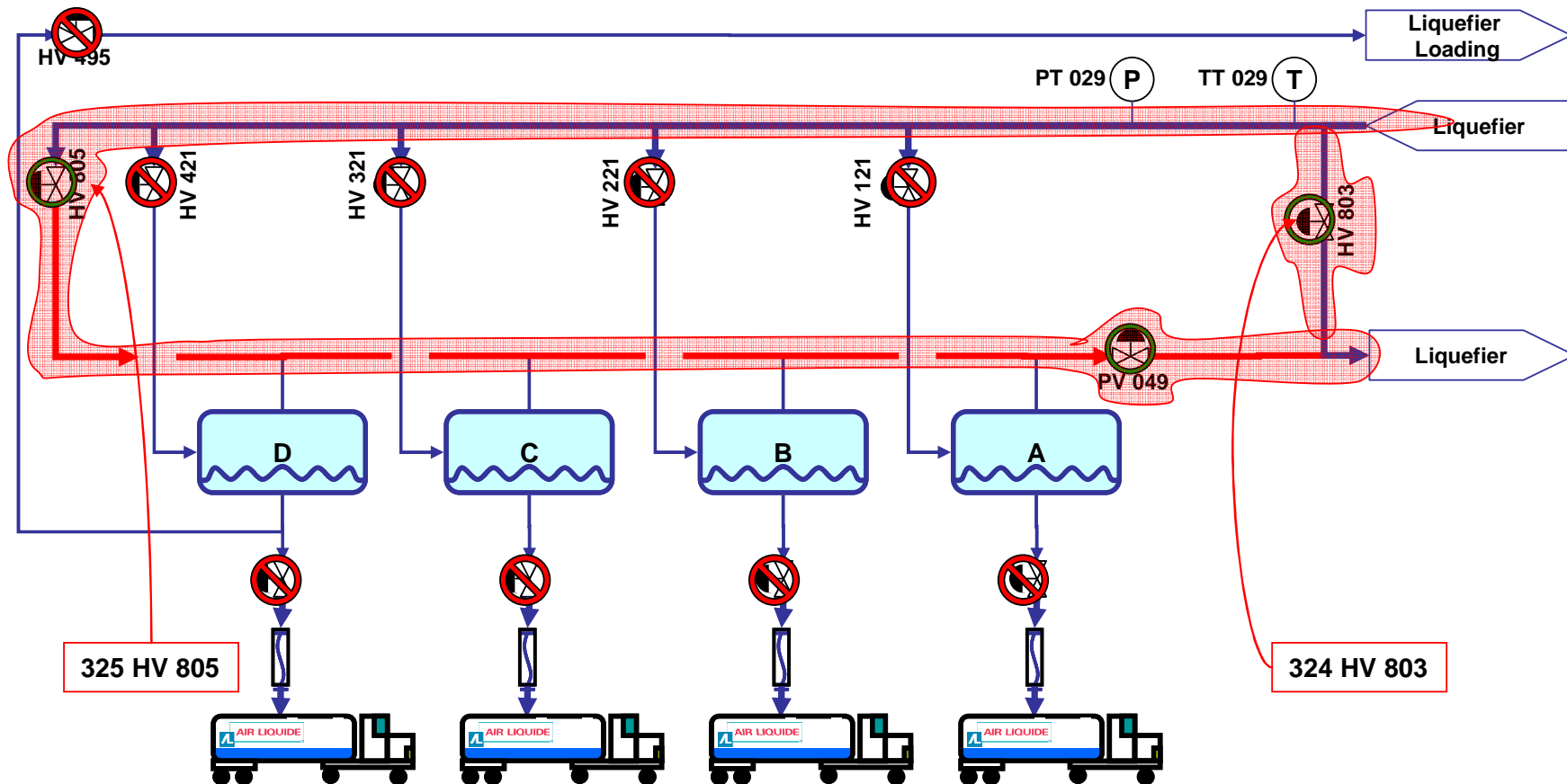
- 324 PV 809 is closed: Gas Bags are disconnected.
- 324 PV 049: 324 PV 049 Control Loop Started.



G301 LHe Storages Connection: Bay Line Connection

STEP 200 :

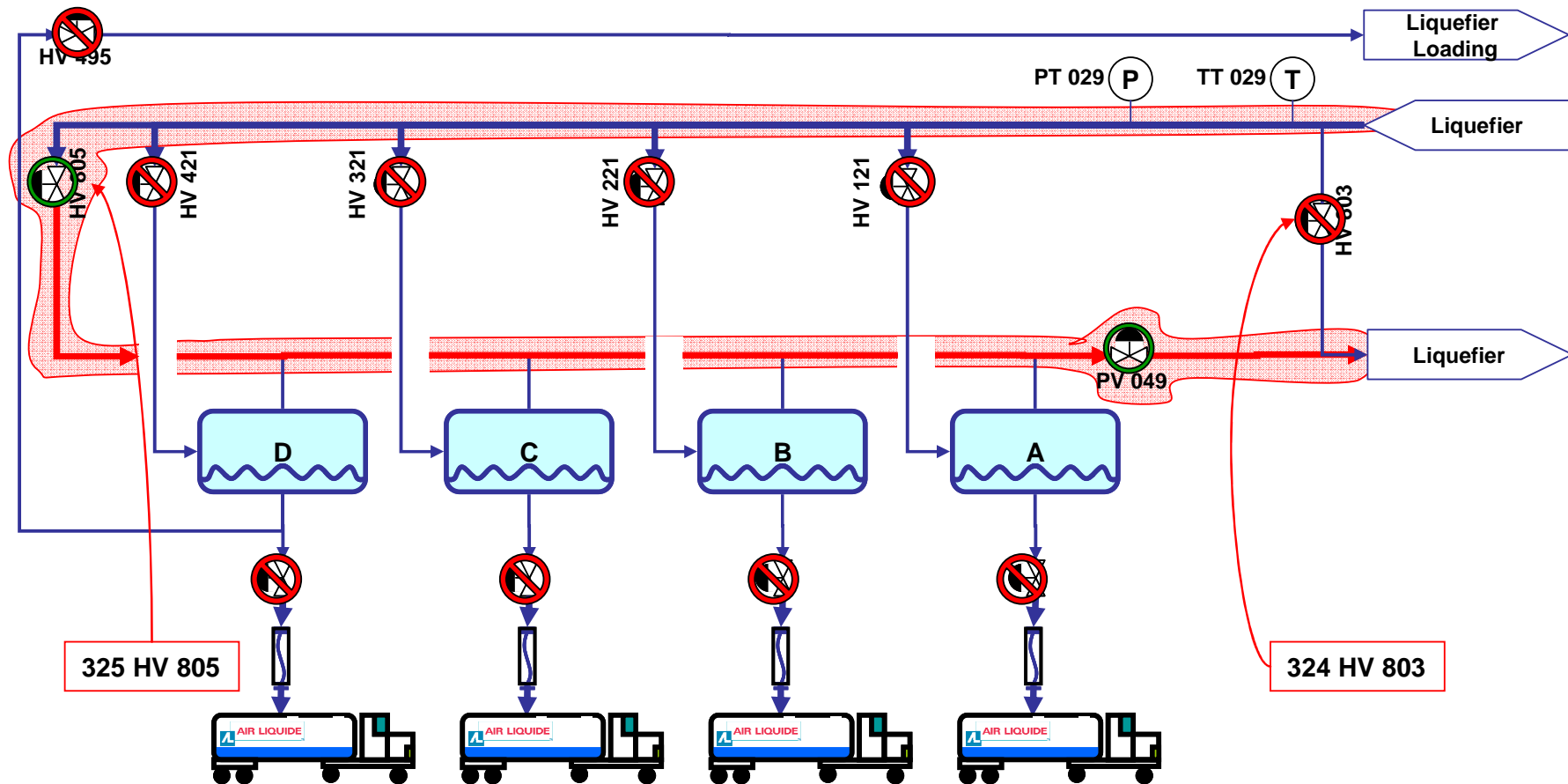
- 325 HV 805 is open very slowly to cool down JT inlet collector prior to connection.



G301 LHe Storages Connection: Bay Line Connection

STEP 210 :

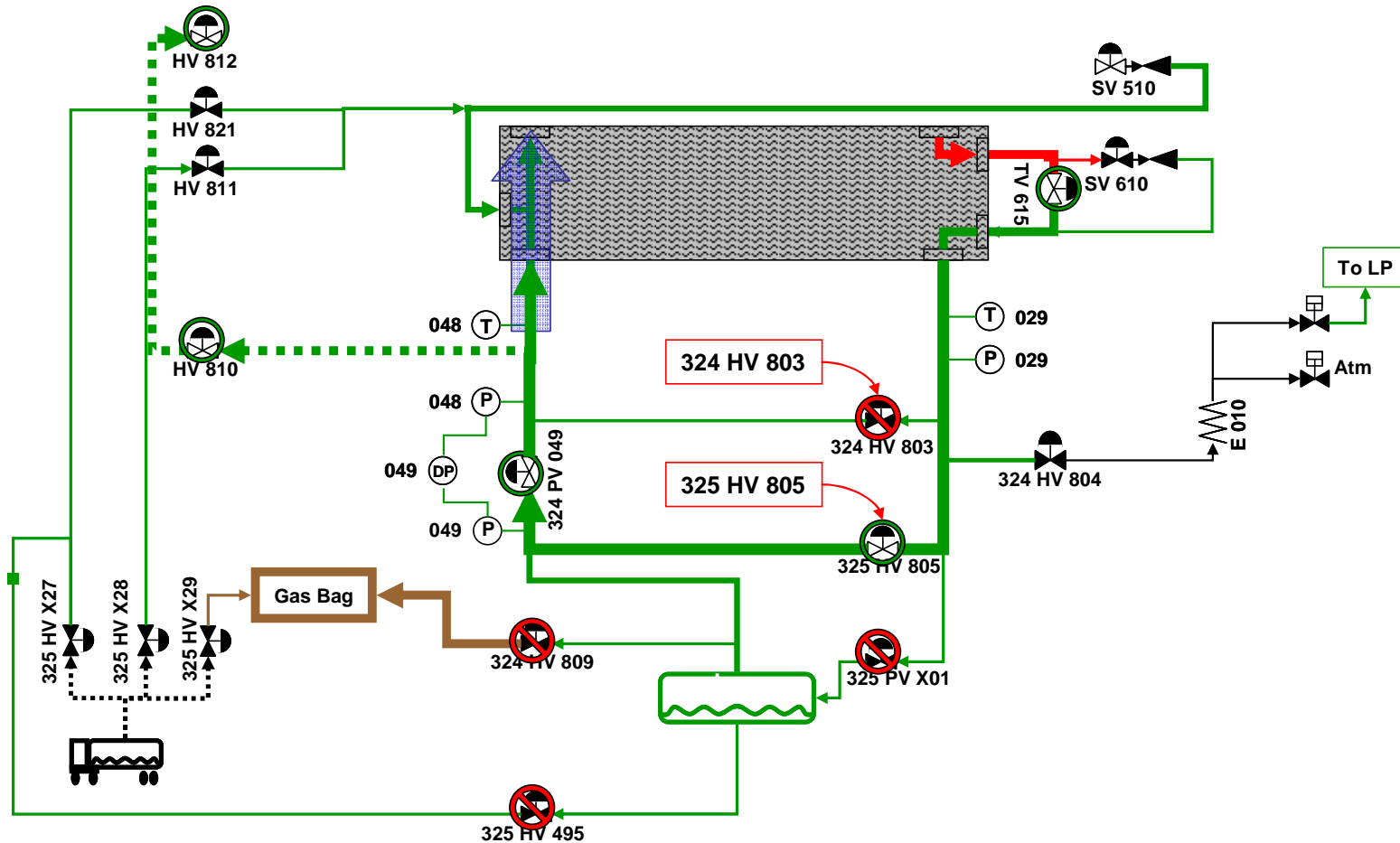
324 HV 803 is slowly closed, which forces all cool-down flow to go through 325 HV 805.



G301 LHe Storages Connection: Bay Line Connection

STEP 210 :

325 HV 805 circulates cold gas upstream JT Valves, to avoid LHe Vaporization during connection.

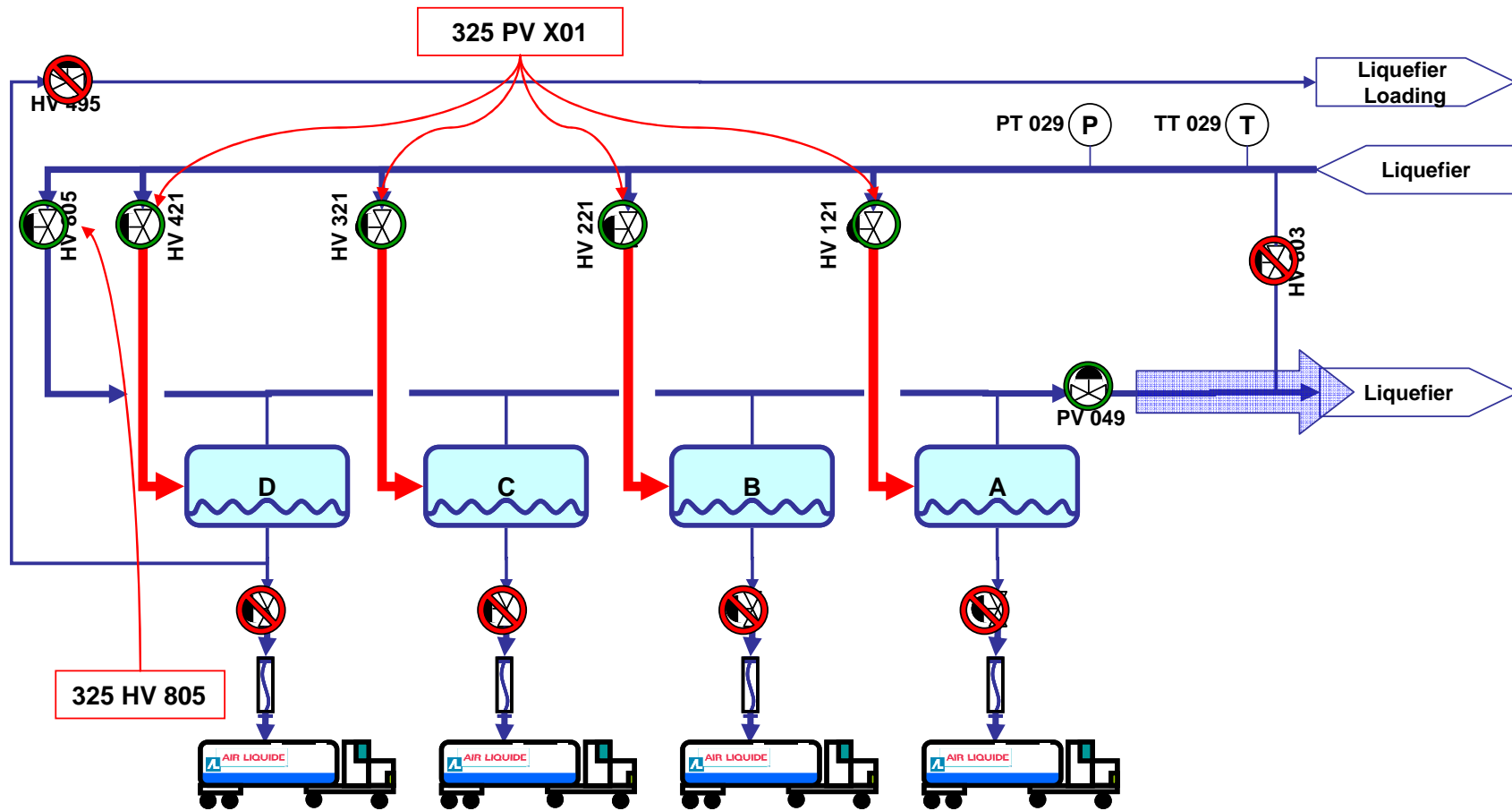


G301 LHe Storages Connection: Bay Line Connection

STEP 300 :

325 PV X01 are slowly connected.

As the valves might be warm and the LHe Storages might contain liquid, the connection might result in large quantities of cold helium to liquefier and compressor station.



G301 LHe Storages Connection: Bay Line Connection

STEP 310

- 325 HV 805 is slowly closed, while all the flow is forced to the LHe storages, bringing potentially more heat.
- 325 HV 495 is open with ramp to maintain the loading line under cold conditions.

