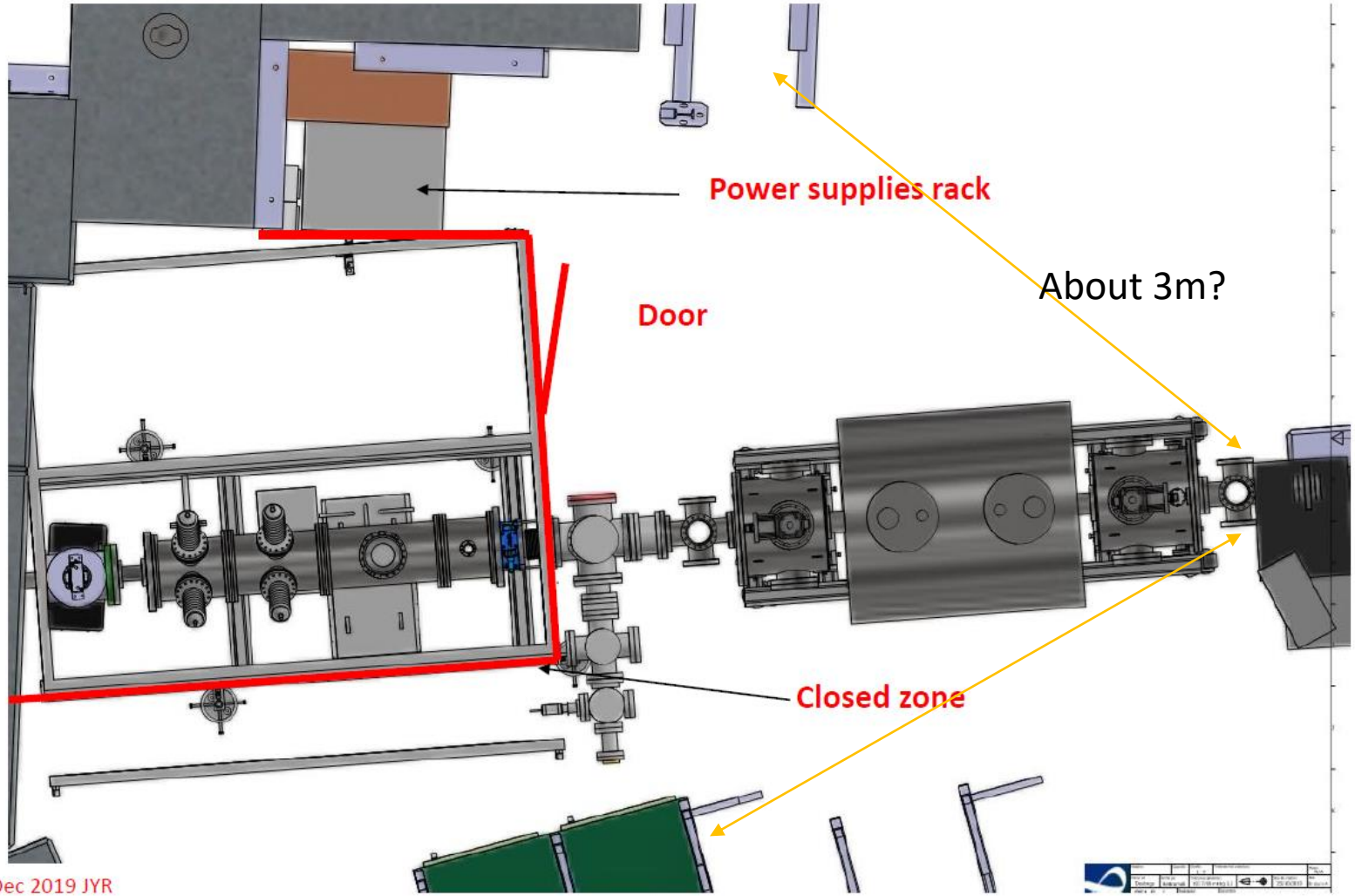
Some issue of pbar trap

Bongho kim

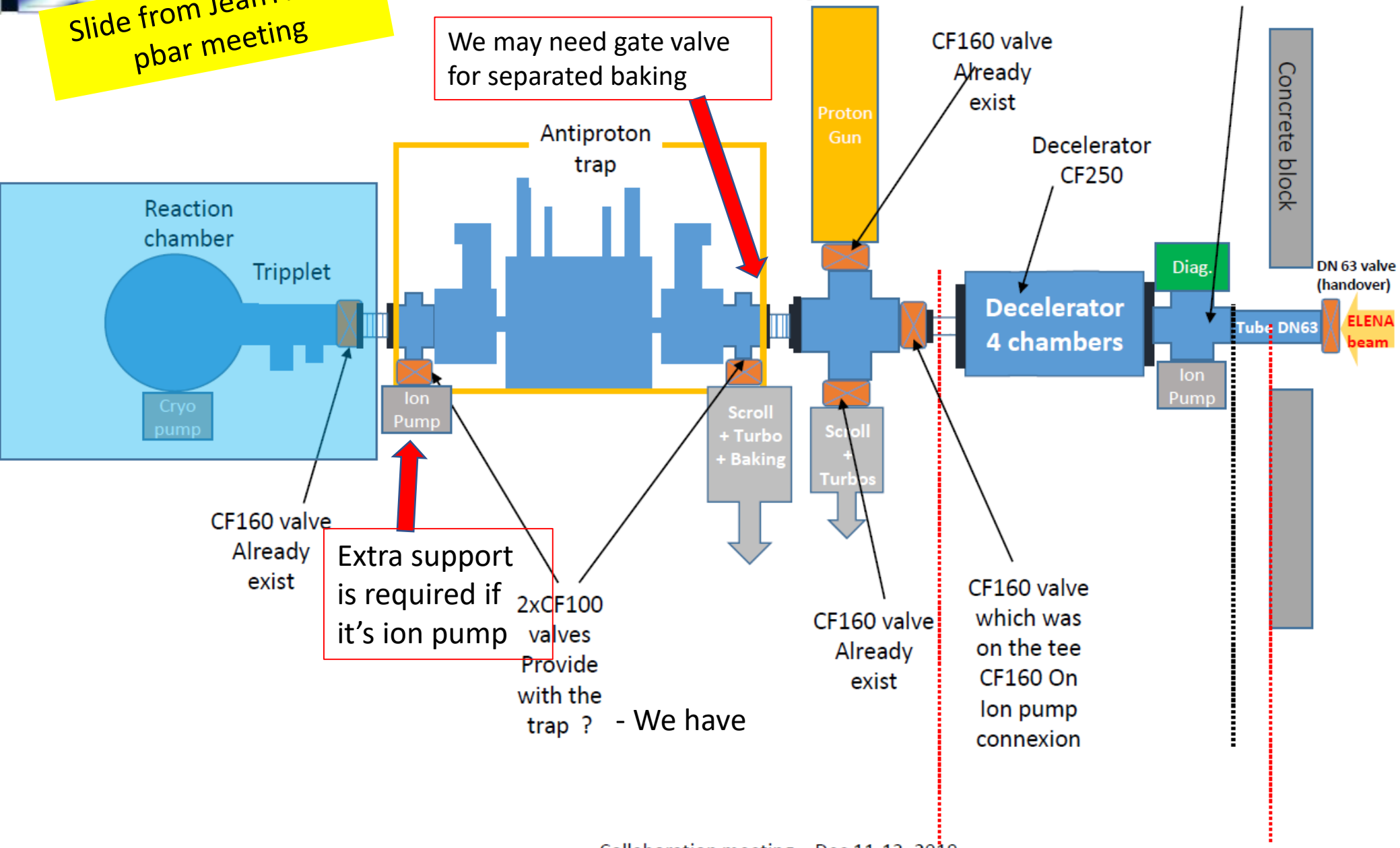
Antiproton line with trap

Cage organisation



Slide from JeanYves at pbar meeting

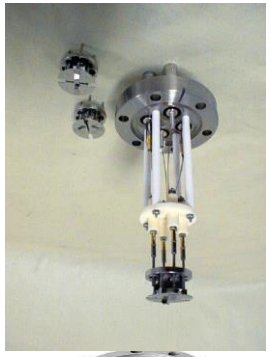
Antiproton line with trap
Vacuum drawing

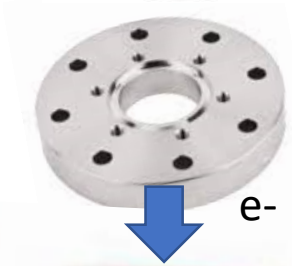


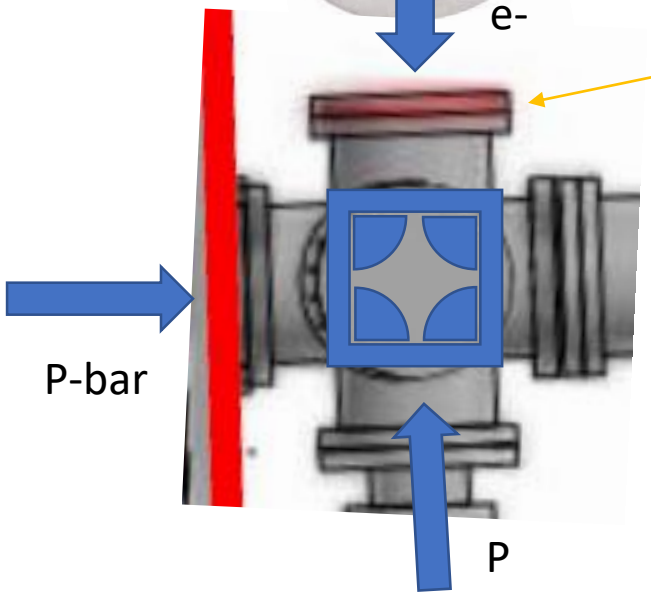
Possible effects by spark at accelerator

- Damage to PXI or compactRIO channel
- Break the module
- Give effect to the action of control
- Better to have extra relay?
- Have some monitoring of the current for example.

About the electron gun at CF160 cross







- Issue to care : If p beam hits the electron cathod, it may be damaged. → gate valve required?
- If so, we need separated pumping system in the electron cathode part :(minimum requirement) gate valve + Reducer(CF160->100) + T (CF100) + valve (CF100)
- Need to be careful to use the HV floated cathode (spark issue)

About the entrance monitor

- Phosphor screen only or 1-stage MCP with phosphor
- Need to monitor p-bar, p and electron all?
- If need to read current, MCP or extra faraday cup is required.

For pwo detector1

- Need to add 50ohm to the detector connector at the detector side.
- Fitting problem based on ringing artifacts.

https://en.wikipedia.org/wiki/Ringing_artifacts

5.3.4 Output circuit for a fast response photomultiplier tube

For the detection of light pulses with fast rise and fall times, a coaxial cable with 50-ohm impedance is used to make connection between the photomultiplier tube and the subsequent circuits.

To transmit and receive the signal output waveform with good fidelity, the output end must be terminated in a pure resistance equal to the characteristic impedance of the coaxial cable as shown in Figure 5-35. This allows the impedance seen from the photomultiplier tube to remain constant, independent of the cable length, making it possible to reduce "ringing" which may be observed in the output waveform. However, when using an MCP-PMT for the detection of ultra-fast phenomena, if the cable length is made unnecessarily long, distortion may occur in signal waveforms due to a signal loss in the coaxial cable.

If a proper impedance match is not provided at the output end, the impedance seen from the photomultiplier tube varies with frequency, and further the impedance value is also affected by the coaxial cable length, and as a result, ringing appears in the output. Such a mismatch may be caused not only by the terminated resistance and the coaxial cable but also by the connectors or the termination method of the coaxial cable. Thus, sufficient care must be taken to select a proper connector and also to avoid creating impedance discontinuity when connecting the coaxial cable to the photomultiplier tube or the connector.

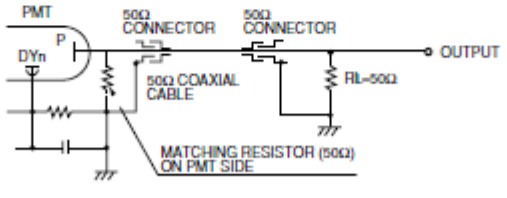


Figure 5-35: Output circuit impedance match