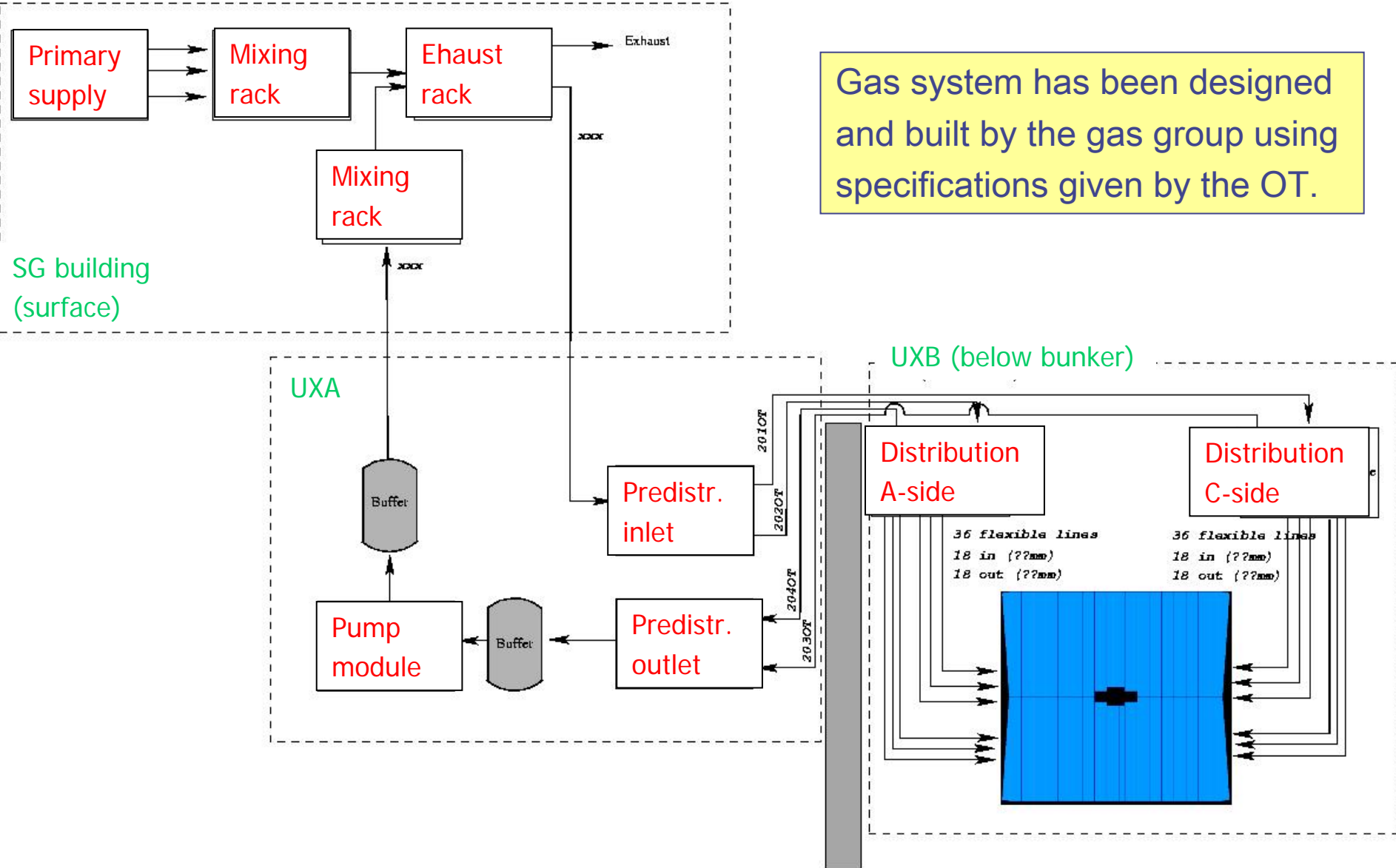


Status of the gas system for the LHCb Outer tracking system

- Status of gas system commissioning
- Insurance of gas quality
- Plans for the coming weeks

Sebastian Bachmann/Marc Deissenroth

Overview of the gas system



Gas system has been designed and built by the gas group using specifications given by the OT.

Status of the gas system:

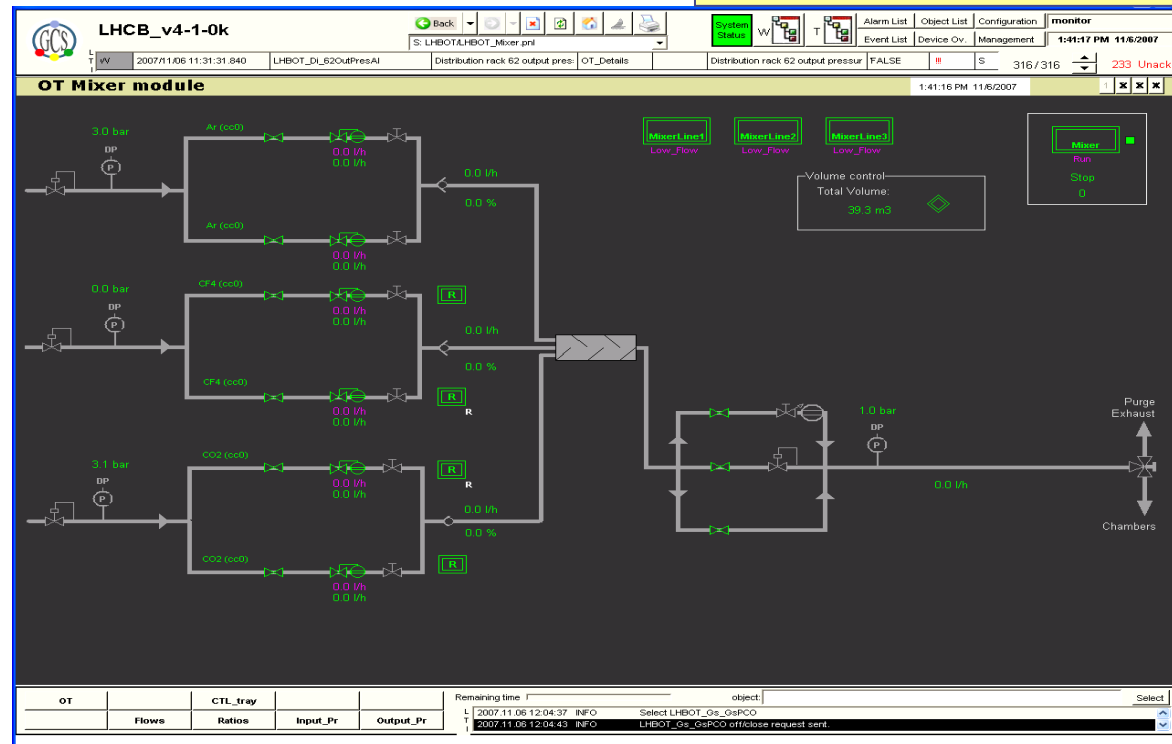
- Pipe work has been finished in August.
- The detectors are bypassed to allow the gas system commissioning without putting risk to the detectors. In the mean time detectors are flushed with CO₂ by means of the back-up line.
- The gas system has been entirely commissioned before Christmas.
- Final tests of gas quality during this week and next week (see next slides).
- Final commissioning of gas system + detectors foreseen for beginning of February.

Gas system commissioning

Commissioning of gas system includes:

- Leak test and flushing of all pipes (~2 weeks flushing for all long distance pipes). ✓
- Tests of all electrical connections. ✓
- Commissioning of the gas racks. ✓
- Circulation of gas. ✓
- Configuration and test of software. ✓
- Adjustment of flow cells.

Screenshot from control Software:



Quality insurance of gas system

During all steps of installation and commissioning a lot of effort has been spent to guarantee the cleanness of the gas, i.e.

- Samples have been taken from pipes and filters and analyzed by means of IR spectroscopy.

Pollutions found and removed (see figure).

Introduced probably by welding work.

- Gas sample analyzed by means of gas chromatograph.

Mixing ratio of Argon and CO₂ found to be wrong.

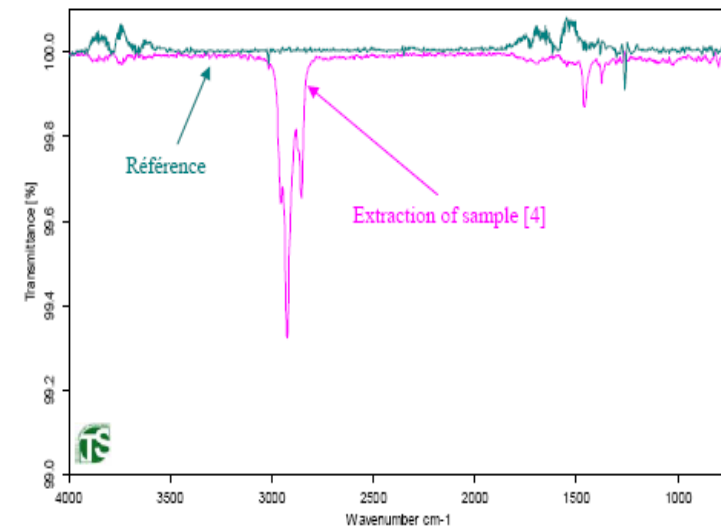
- Cold trap included in gas loop.

No residuals found.

- Test detector included in gas loop.

Irradiation test scheduled for this week.

Spectrum from IR-spectroscopy
Showing pollutions in gas pipes:



The coming weeks

- This week the irradiation of the test module starts. Irradiation takes ~10days.
- Beginning of February the detectors will be included in the gas circuit and the final commissioning of gas system+detectors will start.
- Expect stable supply of detector with counting gas ~mid February.

Many people are involved to this work, thanks to all of them:

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