HostLab 2
SLD Revision
CO2 process & building SXSN

24.06.2021
HostLab2
SLD Revision. CO2 process & building SXSN

• Situation as of today
  • Among all the scopes, the CO2 process is well defined in terms of power needs
  • Preliminary SLD released based on info received from CO2 process
  • Other scopes are not clear enough to be included in detail into the SLD (TDAQ, UPS, CV SUX1)

• Objectives of the meeting
  • General point about HostLab status for Point 1 & 5
  • Initiate interaction with CMS & ATLAS on the SLD
    • Corrections, Maintainability, Operation… and any other remark or improvement on the SLD

• Next steps
  • Revision of SLD according to CMS, ATLAS, EN-EL feedback
  • Revision of SLD with Atlas and CO2 process owner
  • Integration of other scopes
CO2 PROCESS
2PACL + R744

General Description

- CO2 cooling system for the ATLAS detector
  - Feeding from Machine network
- Located in a new building – SXSN1 (3151), next to SG1
  - General services connection
- Divided in 2 areas
  - Surface
    - R744 cooling (600kVA approx.)
    - 2PACL CO2 stockage area (11kVA)
  - Underground
    - 2PACL accumulators and pumps (600kVA approx.)
    - Pre-vaporization (Warm nose) ATLAS cooling
    - Dummy loads for 2PACL testing and commissioning

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CO2 PROCESS
2PACL + R744

- General Description
  - CO2 cooling system for the ATLAS detector
    - Feeding from Machine network
  - Located in a new building – SXSN5 (3552)
    - General services connection
  - Divided in 2 areas
    - Surface
      - R744 cooling (600kVA approx.)
      - 2PACL CO2 stockage area (11kVA)
    - Underground
      - 2PACL accumulators and pumps (600kVA approx.)
      - Pre-vaporization (Warm nose) ATLAS cooling
      - Dummy loads for 2PACL testing and commissioning
## CO2 PROCESS

### 2PACL + R744

- **R744 cooling – Surface at SXSN1-5**

<table>
<thead>
<tr>
<th>Critical loads</th>
<th>Normal loads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for a UPS backed-up by diesel supply – no power-cuts, no glitches, no disturbances</td>
<td>Accept Power cuts, additional refrigeration capacity</td>
</tr>
<tr>
<td>Needed to keep a minimum refrigeration capacity</td>
<td></td>
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</table>

- **Chillers (375kW)**
- **Control**
- **Other loads**
- **Chillers (375kW)**
- **Control**
- **Other loads**

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## CO2 PROCESS
### 2PACL + R744

- 2PACL cooling – Surface SXSN1-5 and Underground

### Critical loads
- Need for a UPS backed-up by diesel supply
  - no power-cuts, no glitches, no disturbances
- 2PACL shall be able to work even when R744 is not available
- Fast power cut -> pressure oscillation that will damage the detector
- Lack of cooling -> detector degradation

### Normal loads
- Accept Power cuts, additional refrigeration capacity

### Surface storage
- Back-up supply for pumps, heaters and additional processes

### Pumps
- Heaters

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