B245 Modifications & Cabling Update

LIU-PSB Meeting 193 23 May 2017

Fulvio Boattini TE/EPC
Acknowledgements: Christophe Biot SMB/SE
B245 Modifications

B245 explosion studies results: EDMS 1806865
B245 modifications: explosion studies

- Concrete cuts and lateral elements;
B245 modifications: explosion studies

- Concrete cuts and lateral elements;
- Construction of containment walls outside capacitor room S401;
B245 modifications: explosion studies

- Concrete cuts and lateral elements;
- Construction of containment walls outside capacitor room S401;
- Steel frames for supporting floor of R-403;

Steel supporting structure
B245 modifications: explosion studies

- Concrete cuts and lateral elements;
- Construction of containment walls outside capacitor room S401;
- Steel frames for supporting floor of R-403;
- Blast Resistant doors in capacitor rooms R401 & R403;
B245 modifications: explosion studies

• Concrete cuts and lateral elements;
• Construction of containment walls outside capacitor room S401;
• Steel frames for supporting floor of R403;
• Blast Resistant doors in capacitor rooms R401 & R403;
• Explosion vents for R401, R403 and on door of S401;

Design to be finalized
B245 modifications: Others

- Apertures in the converter hall wall (EN/CV);

Evacuation of hot air when external fresh air is taken in by the HVAC units
B245 modifications: Others

- Apertures in the converter hall wall (EN/CV);
- Completion of control room (TE/EPC);

False ceiling and toilette
B245 modifications: Others

- Apertures in the converter hall wall (EN/CV);
- Completion of control room (TE/EPC);
- Construction of the Reference magnet room (TE/MSC);
B245 modifications: Others

- Apertures in the converter hall wall (EN/CV);
- Completion of control room (TE/EPC);
- Construction of the Reference magnet room (TE/MSC);
- Sealing of all Manhole covers (HSE);

Required to avoid pollution of the water networks by oil leaks or fire-extinguishing liquids
B245 modifications: quotation

Preliminary quotation (Christophe)

- Modifications due to explosion studies (TE/EPC) -> 119 kCHF
- Control room (TE/EPC) -> 32kCHF
- Ref magnet room (TE/MSC) -> 32 kCHF
- Manhole covers sealing (HSE) -> 15 kCHF
- Opening on side (EN/CV) -> 20 kCHF
- Additional openings on concrete (EN/CV) -> 10 kCHF
- **Total Christophe** -> 228 kCHF
- **Blast resistant doors, vents, unforeseen** -> 52 kCHF
- **Total Fulvio** -> 280 kCHF
B245 modifications: Realization

Completed on July 2017
• Verifications by Synaxis;
• Choice of venting devices and doors;

Completed on September 2017
• Installation of all air pipes in control room;

Completed on November 2017
• Realization of all B245 modifications by a general contractor coordinated by SMB

Cost: 280 kCHF   CB: 76805
POPS-B power cabling update
POPS-B Cabling for YETS 2017-2018

- C19 & C20: connection to dummy load 4+1 cables 350mt -> 1750mt UFR1 240mm²

External to B245
EDMS: 1700908 & 1719012
POPS-B Cabling for March 2018

- C7 ÷ C12: POPS-B to Switch 36 x UFT1 400mm² 450mt
- C21, C41, C42, C35 ÷ C40: QTR to Switch 9 x UFR1 250mm² 230mt
- C43 ÷ C48, C53 ÷ C60, C65, C66: INJ EXTR to Switch 16 x UFR1 250mm² 310mt

In B245

Converters to switch cabling
EDMS:1561968 & 1527843
POPS-B Cabling for March 2018

- C80 ÷ C88: POPS-B transfo 18 x UFT1 400mm² 350mt
- C89 ÷ C94 : POPS-B capacitors 24 x UFR1 250mm² 1000mt
- C95 ÷ C112: POPS-B magnetics (*) 36 x UFR1 250mm² 200mt
- C113 ÷ C124: POPS-B filter 72x UFT1 400mm² 580mt

In B245

Converters internal
EDMS:1561968 & 1527843
(*) 400mm² Cu 12kV unscreened
No HV head
To be purchased
POPS-B Cabling for LS2

- C49 ÷ C52 & C61 ÷ C64: Inj/Extr trims to magnets 8 x 1kV 240mm² 1120mt

External to B245
EDMS: 1810305 & 1810310
POPS-B other cabling
# POPS-B FO Cabling for March 2018

## Optical fibers

**EN/EL/FC: Contacted last time in 2016 (Jean-Marc Lassauce)**

<table>
<thead>
<tr>
<th>Function</th>
<th>From</th>
<th>Bldg</th>
<th>Responsible</th>
<th>To</th>
<th>Bldg</th>
<th>Responsible</th>
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<tbody>
<tr>
<td>BField measurement</td>
<td>B-Train system 1</td>
<td>245 (NMR)</td>
<td>D.Giloteaux TE-MSC</td>
<td>POPSB 1-4 converter</td>
<td>245</td>
<td>J.L. Gomez-Costa TE-EPC</td>
<td>2 +1 Spare</td>
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<tr>
<td>BField measurement</td>
<td>B-Train system 2</td>
<td>245 (NMR)</td>
<td>D.Giloteaux TE-MSC</td>
<td>POPSB 2-3 converter</td>
<td>245</td>
<td>J.L. Gomez-Costa TE-EPC</td>
<td>2 +1 Spare</td>
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<td>BField measurement</td>
<td>B-Train system 1</td>
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<td>D.Giloteaux TE-MSC</td>
<td>POPSB 5 converter</td>
<td>245</td>
<td>J.L. Gomez-Costa TE-EPC</td>
<td>2 +1 Spare</td>
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<td>BField measurement</td>
<td>B-Train system 2</td>
<td>245 (NMR)</td>
<td>D.Giloteaux TE-MSC</td>
<td>RF System</td>
<td>361(R708)</td>
<td>M.E. Anoletta</td>
<td>5</td>
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<tr>
<td>MTG</td>
<td>MTG crate in B-Train system rack</td>
<td>245 (NMR)</td>
<td>B.Ninet BE-CO</td>
<td>MTG system</td>
<td>354 (via 361)</td>
<td>B.Ninet BE-CO</td>
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POPS-B Ethernet Cabling for March 2018

Ethernet connections

IT/CS/DO: Contacted last time in 2016 (Federico Lerda)
POPS-B Cabling: Realization

Completed YETS 2017-2018
• Dummy load Cables;
• Optical fibre and Ethernet

Completed mid of March 2018
• B245 installation of power converters;

Completed end of April 2018
• B245 internal cabling (≈ 3 km);

Completed on LS2
• Injection-Extraction magnets trim coils cabling;
Thank you for your attention

Questions?