

# New Injection Region 1L1

PSB-L-EC-0001

Update after Comments

For Approval

W. Weterings TE-ABT-FPS

### 3.1 SMH1L1 - BTV60 ASSEMBLY

*Engineer in charge: J. Borburgh (SMV), S. Burger (BTV60)*

The SMH1L1 BTV60 assembly, cyan coloured in figure 1, will become obsolete and shall be removed from sector 1L1. All cabling, cooling circuits, vacuum equipment and support structures related to this equipment shall also be removed. The BTV60 will also be removed and a new BTV will be installed at the future stripping foil location, as described in paragraph 3.6.

### 3.2 MSF1L1 - ASSEMBLY

*Engineers in charge: E. Bravin, G.J. Focker*

The MSF1L1 assembly in ring 3, cyan coloured in figure 1, shall be removed from sector 1L1. All cabling, cooling circuits, vacuum equipment and support structures related to this equipment shall also be removed.

### 3.3 KSW1L1 - BTV50 ASSEMBLY

*Engineer in charge: L.M. Coralejo Feliciano (KSW), S. Burger (BTV50)*

The KSW1L1 BTV50 assembly, green coloured in figure 1, shall be removed from sector 1L1. A new KSW magnet stack shall be installed in sector 16L1, as described in separate ECR PSB-MKKSW-EC-0001, EDMS 1422350. All cabling, cooling circuits, vacuum equipment and support structures related to this equipment shall also be removed. The BTV50 will become obsolete and shall not be re-installed.

✘ Rejected by TAVLET Marc

In 7.1, you ticked NO alarm deactivation, which is in contradiction with the legend of Fig.8 where we see that an AUG needs to be relocated.

Alarms deactivation/activation (IS37):	X	As described in 3.12; some services currently located in that region, as shown in figure 9, will need to be relocated.
Others:		

✔ Accepted by MIKULEC Bettina

Page comments

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Water cooling is also required for the H<sup>0</sup>/H<sup>-</sup> dumps.

Demineralized water:	Dedicated manifold for BSW magnet and H <sup>0</sup> /H <sup>-</sup> dump cooling.
Compressed air:	Compressed air connections for new vacuum equipment

✘ Rejected by CALVIANI Marco

For the H<sup>0</sup>/H<sup>-</sup> dump the EN/STI responsible is D. Grenier (remove the other names)

### 3.7 H<sup>0</sup>/H<sup>-</sup> DUMP AND INSTRUMENTATION [TDIMA, BCSEA]

Engineer in charge: D. Grenier, F. Roncarolo

Four new titanium H<sup>0</sup>/H<sup>-</sup> dumps with beam current monitors, 1 in each ring, will be

— Seen by **AGUGLIA Davide**

Thanks for this doc. The pulse transformers are in manufacturing process. No more possibilities to put them under the false floor. Equipment in Fig. 9 shall be relocated.

▼ Page comments

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Delete sentence: "The alternative option and possibility of building smaller transformers, in order to install these under the false floor, is still under study."

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Delete last row of table in 4.2

— Seen by **COUPARD Julie**

Please refer to ECR PSB-K-EC-0001 "BSW Chicane Stripping Foil Magnet Power Converter Infrastructure". Comments from Davide Aguglia need to be rediscussed in ICL meeting if relocation is needed.

— Seen by **MARSH Simon Robert**

Section 3.12 - are the power converters new, or a revamp/reuse of existing? There is a statement that they will not contain oil. Does this imply the use of SF6 or anything else? Please be explicit.

### 3.12 BIR.BSW1L1.[1,2,3,4] POWER CONVERTERS

*Engineer in charge: D. Aguglia*

The power converters for the BSW magnets will be installed in building 361 in the BRF2 room. Nevertheless, as described in EDMS 1423528 and illustrated in figure 8, given the higher current required for BSW1L1.1 (6.7 kA), it will be necessary to place these pulse transformer right beside the magnets (~10 m of cable length). The optimal position has been identified as shown in figure 8. These transformers will not contain oil **nor gaz**. In order to create space for these transformers, some services currently located in that region, as shown in figure 9, will need to be relocated. For this system, new cables shall be installed. **For more information, ECR PSB-K-EC-0001 "BSW Chicane Stripping Foil Magnet Power Converter Infrastructure".**

Others:	<b>As mentioned in paragraph 3.12, some services currently located in that region will need to be relocated.</b>
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As work has advanced I would suggest updating section 3.10 as follows:

### 3.10 BHZ162 AND BHZ11 VACUUM CHAMBERS

Engineer in charge: J. Hansen, A. Newborough

The currently available space of 1964mm (flange to flange) between the BHZ162 and BHZ11 magnets is not sufficient for the new injection system and more space (2454mm) needs to be created. For this reason the current vacuum chambers of the BHZ162 (drawing ref. SI.3.49.1219.0) and BHZ11 (drawing ref. SI.3.49.1215.1) magnets, red coloured in figure 1, will be replaced by new, shorter, Inconel vacuum chambers (CATIA ref. ST0573977 and ST0586241). A new injection chamber shall also be installed together with a chamber alignment system. To accommodate for the alignment system several holes shall be drilled and tapped in the magnet end plates, BHZ162 downstream side and BHZ11 upstream side as shown in drawings PSBMBHOR0050 and PSBMBHOR0051. The upstream covers on the BHZ11 magnet will also be modified to accommodate the chamber alignment system. In case of early connection of the Linac 4 spare magnets are available to replace the BHZ162 and BHZ11, however there is a clear desire to keep the non-radioactive spare magnet which would replace the BHZ11 available to be used as the new reference magnet for 2 GeV operations.

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