Status of handling studies for PSB-LIU

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LIU-PSB 17/09/2015
Courtesy: A. Newborough
EDMS 1543164
Topics

• Handling of extraction line magnets (oversize)
• Handling of Injection and Transfer lines magnets (standard)
• Spreader for triplets
• Handling of reference magnet
• Consolidation of handling equipment in PSB
overview of the magnets

BTY BVT  BHZ10  TBH
Actual magnets: BTM.BHZ10

• BTM.BHZ10: actual weight is 18t: cannot be removed as such (underground crane 10t). Operational spare exists. Possibilities:
  • Develop a special structure to unload this down (and strengthen the transfer table to bring it down the shaft)
  • Bring it in a safe area at the same level and cut it in pieces
Replacement of BHZ10

- It will weight 17t but it is foreseen to be composed by 2 halves of <9t each. It will be possible to assemble to 2 parts with the crane beside his final position and then transfer to destination.
- Some tooling is needed
- It is possible to change the coils in situ if breakdown, A. Newborough agreed that nothing heavier could potentially fail so to require the replacement of it.

To work on coils, the magnet can be moved into the corridor to work on it.
Actual magnets: TBH

• TBH: actual weight is 7,8t: can be extracted with the same technique that has been used to install it there, but some light tooling is needed to remove it from the concrete block
Replacement of TBH

- A new optimised design is under study that would allow to keep the magnet mass \(~8.5\)t. It could increase up to \(9.7\)t. In any case, the crane could take up to \(11\)t that looks coherent.
- Some tooling is needed.
Actual magnets: BTY.BVT101

- BTY.BVT101: actual weight is 8.5t: can be extracted with the same technique that has been used to install it there.
- Replacement non foreseen at present stage. If needed, the new one >10t
Other magnets in injection and transfer lines

- Analysis of need under completion.
- All <10t
- Tooling is in house and some is needed (light)
Conclusion injection and transfer lines

- Under conditions that
  - the BTY.BTV101 magnet does not need to be replaced (with a heavier one)
  - RP gives the green light to move the actual BHZ10 into a quiet zone, cut this in pieces (projection protections will be put in place) and evacuated after by the existing handling means,
- Then there is no need to develop a special handling gantry with increased capacity (up to 20t) and upgrade the transfer tables (20t each instead of 10t, actual).
- The study of the gantry is then in stand-by up something will change.
Handling tool for spreader

- Old spreader has been repaired and is ready
- New one is upon ordering and will be delivered in 2 months
Handling od reference magnet

• Already presented on 4/12/2015 (LIU-PSB n. 139)
• Not possible to rapidly remove the present magnet (false floor insufficiently dimensioned and full of cables)
• Works locally on the magnet are possible (acting on coils for example) but need deeper studies to be confirmed
Consolidation of handling machines in PSB

• Surface crane has been replaced: working status. Installation of the underground infrared receptor is foreseen in YETS 2015-2016
• Transfer tables are under consolidation: first will be renewed now and reinstalled in YETS 2015-2016, second will be renewed during same YETS
• Underground cranes on ring (3 identical): electrical consolidation finished during LS1
• Underground crane on TL: replaced during LS1
• New crane for b. 245: installed December 2015

➢ the handling equipment for PBS will be completely new or renovated by February 2016
Conclusions

• After discussion with A. Newborough, the provision of a system to remove and reinstall a BTM.BHZ10 or similar magnet in TL is not necessary anymore since the old one can be cut in pieces and removed while the new one has a modular design to allow lighter parts.

• In case of rapid intervention during run (failure), the heaviest parts that risk to fails are the coils and A.N. confirmed that they can be replaced in place with the help of transport. The gantry would not be a proper solution in this case since his installation in situ takes 2-3 weeks.

• Triplet old spreader is ready (in case of urgency) and new one is being ordered.

• All HE machine park will be new or completely refurbished by February 2016.