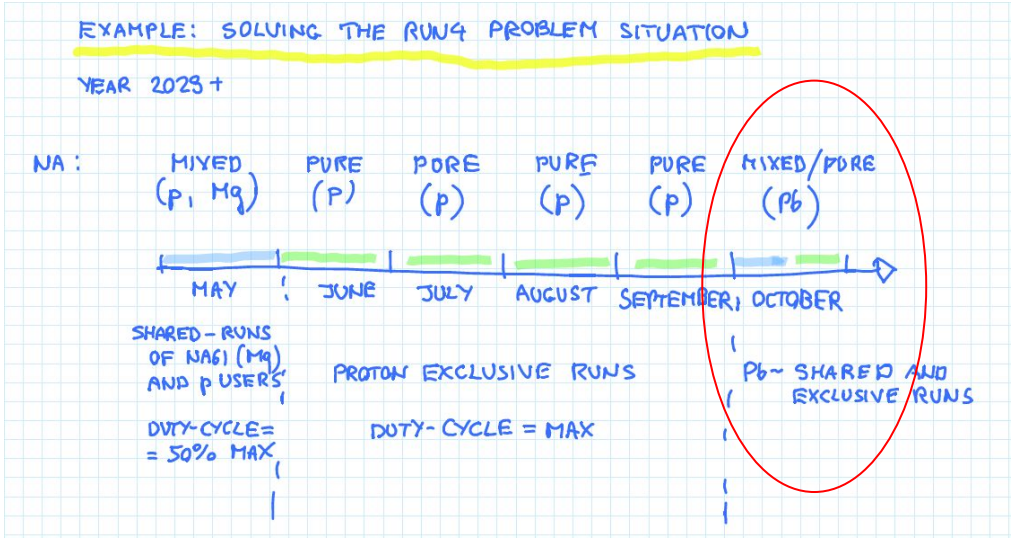
Mixed protons/ions scenarii



- Assume
  - PURE supercycle → 1 spill/25 s
  - MIXED supercycle → 1 spill/50 s
  - PURE → 3450 spills/day
  - MIXED →1725 spills/days
  - 1e7 Pb/spill

PURE: 15 days → 15 x 10^7 x 3450 = 5.17 10^{11} Pb
MIXED: 15 days → 15 x 10^7 x 1725 = 2.59 10^{11} Pb

→ 7.8 x 10^{11} Pb

to be corrected for
LHC filling time →15% (?)
SPS efficiency → 25% loss (?)

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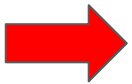

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to be corrected for
LHC filling time →15% (?)
SPS efficiency → 25% loss (?)

What about AWAKE (et al.) ?

5.0 x 10^{11} Pb
(LoI estimate based on 10^{12} incident Pb ions)

- Factor 2 lack could be compensated by
  - Thicker Pb target: currently 15% int. prob., increase to 20% ? Risks related to re-interactions in target material and spread of interaction point positions
  - Larger Pb beam intensity by a factor 2: in principle possible but RP problems and detector performance aspects to be considered

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- Other possibilities/issues
  - run Pb ions 1 month with PURE scenario →from 7.8 x 10^{11} Pb to 10.3 x 10^{11} (33% increase)
    - Would it be accepted by proton clients ?
  - Will the SPS be used for AWAKE etc. on the long term ? Could one “remove” AWAKE during the heavy-ion running ?