

Polarized target status

10/4/2018

Outline

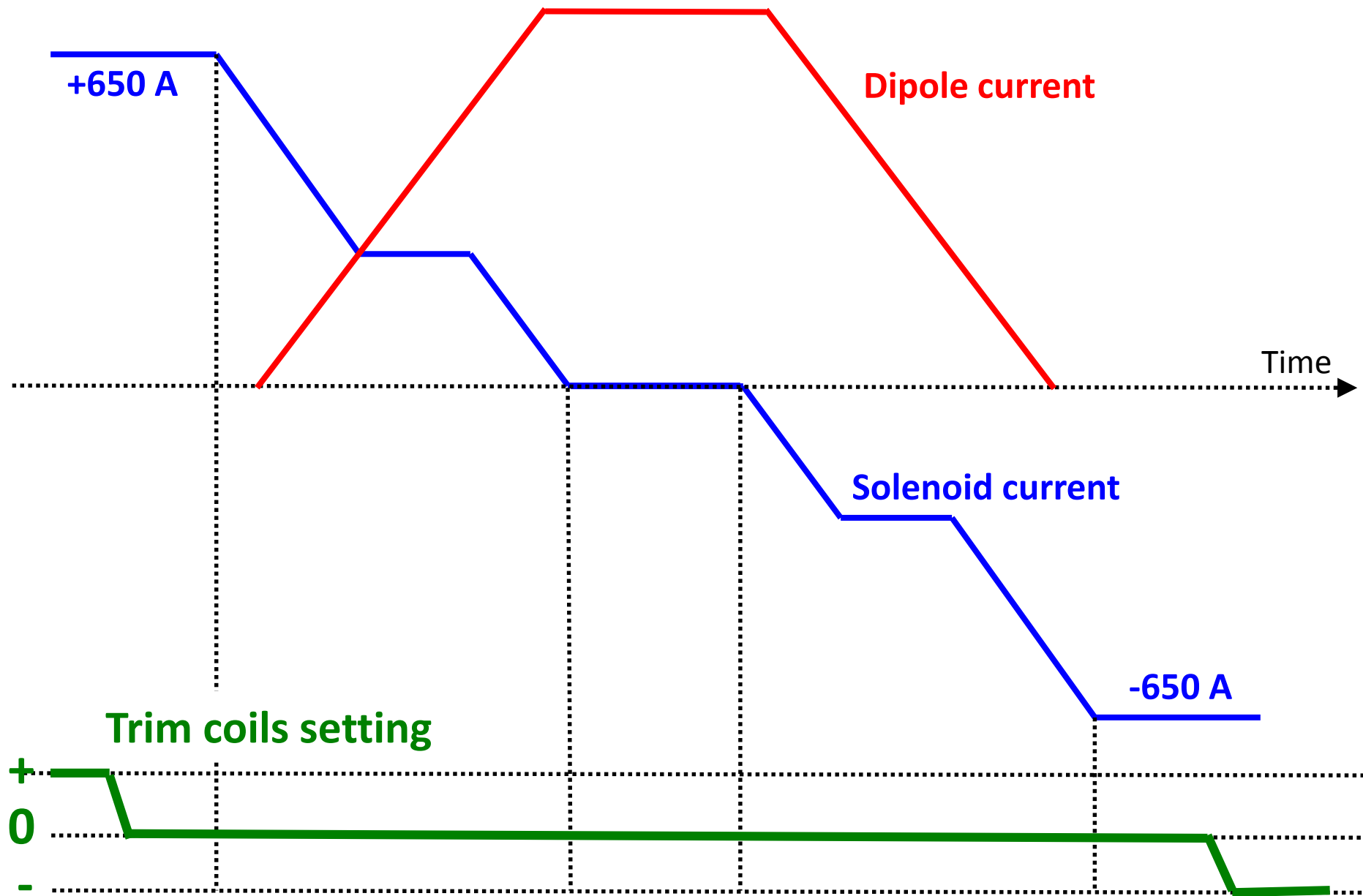
- Magnet commissioning status
 - commissioning items
 - new field rotation procedure
- Pump room intervention
- Target loading schedule and preparation

		Magnet Commissioning in 2018
20/3	MSS Trim	Quench back heater for trim coils, control currents
20/3	Solenoid	Power ON (10 A)
21/3	MSS Sol	Slow discharge of solenoid
21/3	MSS Dip	Slow discharge of dipole
22/3	MSS Sol	Quench back heater for solenoid, fast discharge at 70 A (6 times)
22/3	MSS	Resistance of current leads without helium flow
28/3	Sol	Full current of 646 A
28/3	Dip	Full current of 590A
28/3	Sol	Stability test
29/3	Dip	Stability test
29/3	MSS	Safety for field rotation (Logics of “Tiroir de Sécurité”) until 4/4
9/4 -	Sol Dip Trim	Present field rotation procedure (longitudinal \leftrightarrow transverse)
	Sol Dip Trim	New field rotation procedure (longitudinal \leftrightarrow transverse)
	Sol Trim	TE mode procedure (should be finished until 20/4)
	Sol Dip	Long stability test by power convertor team NEW request
	Sol Trim	Field homogeneity with material

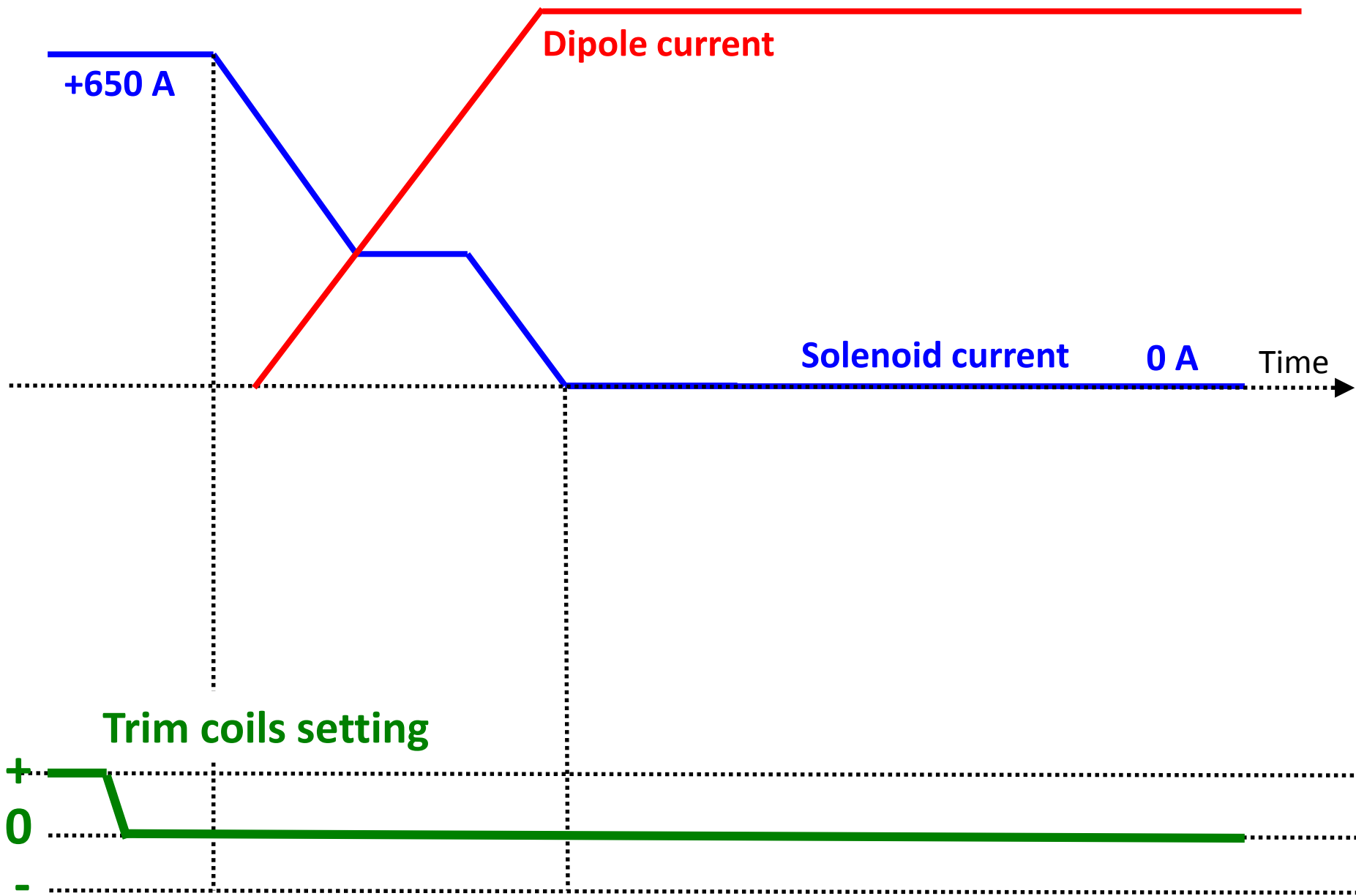
Other issues on the commissioning

- Modification
 - voltage monitoring cards for current detection (23/3)
 - new MSS program
 - new power convertor control system (4/4)
 - new script for filed rotation (5,6/4)
- Magnetic filed warning sign
- Magnet field direction
 - sol : + current → point to downstream
(opposite from 2015)
 - dip : + current → point to up

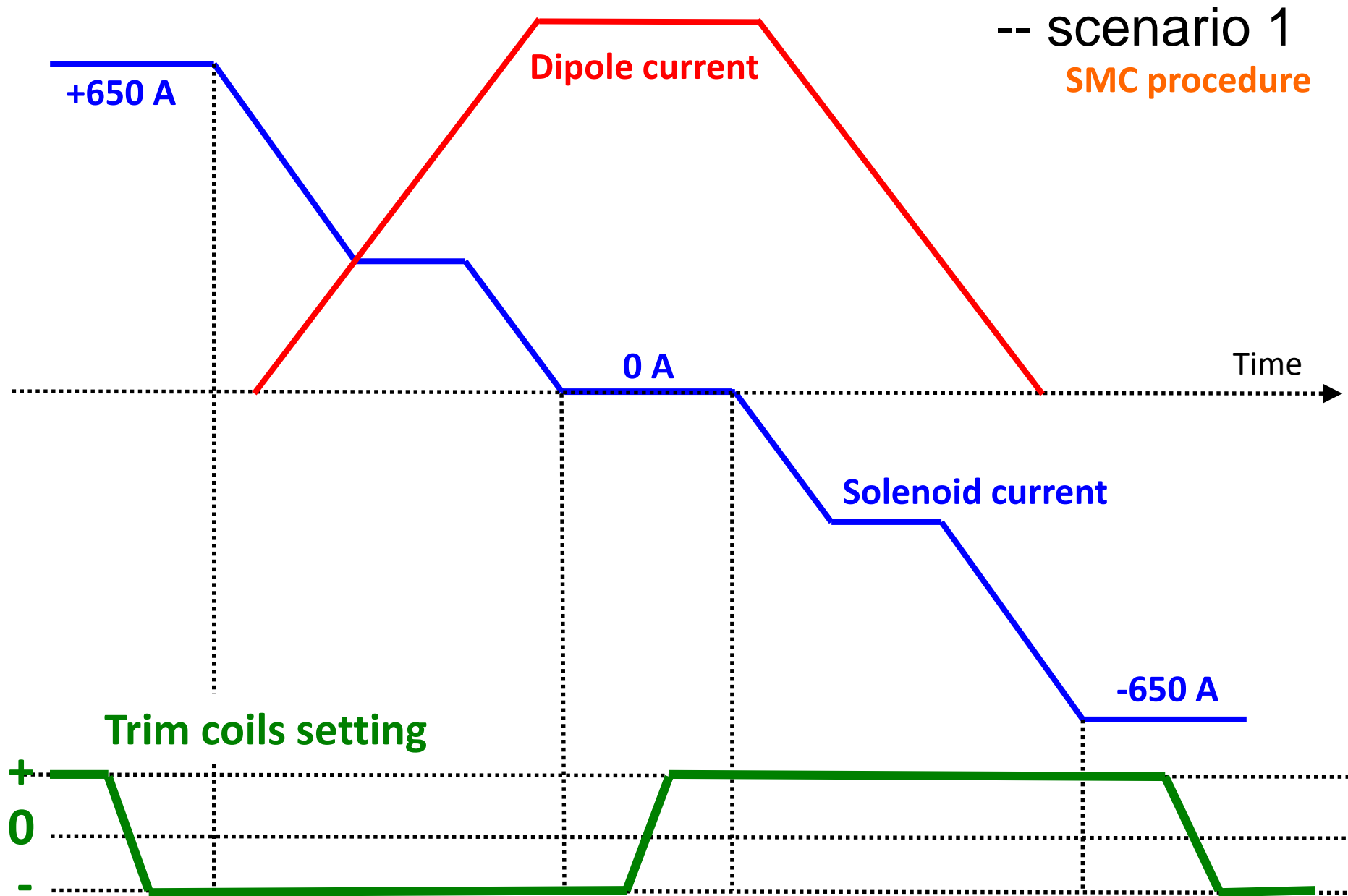
Trim coils operation in 2015



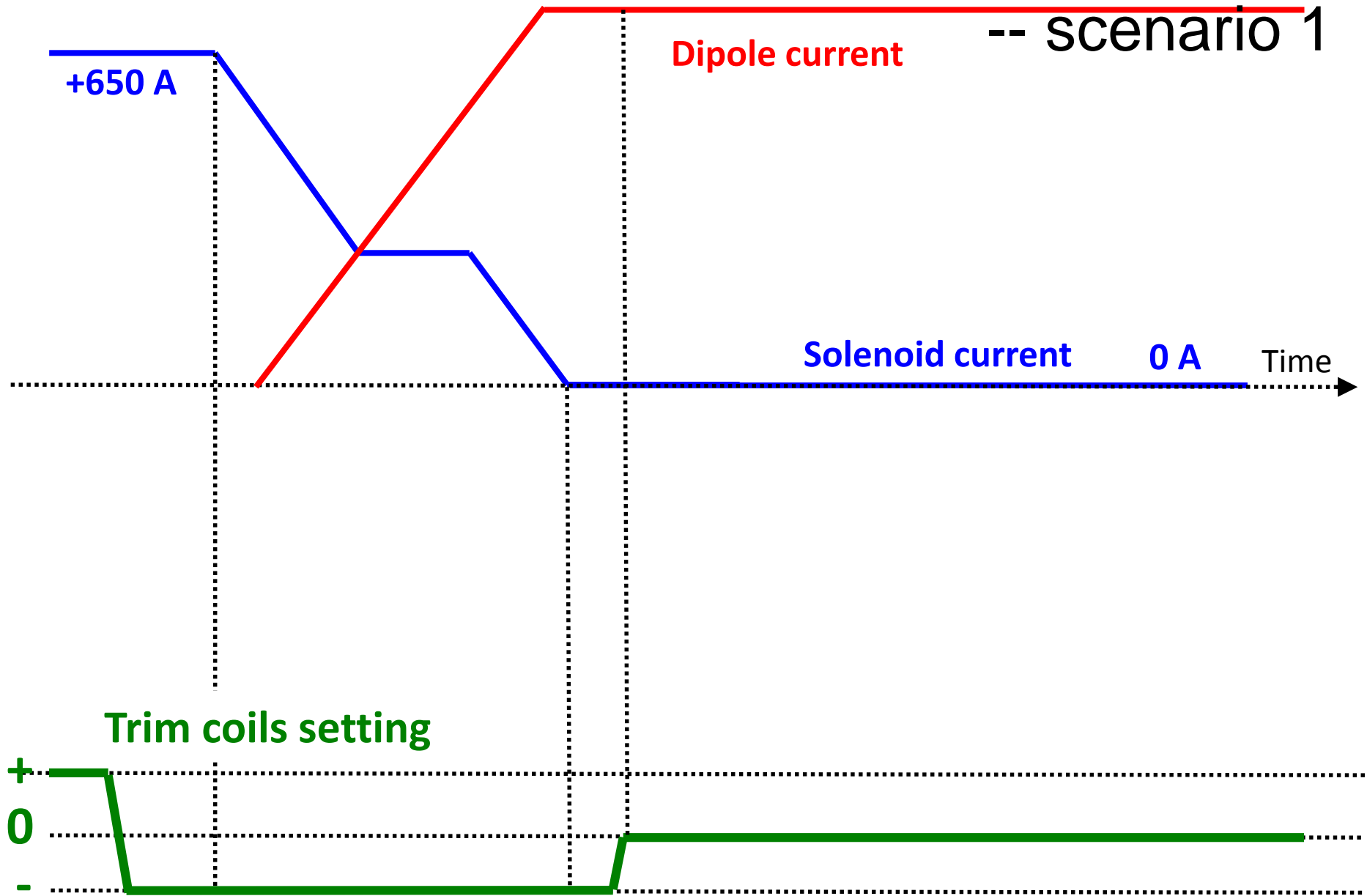
Trim coils operation in 2015 (Transverse mode)



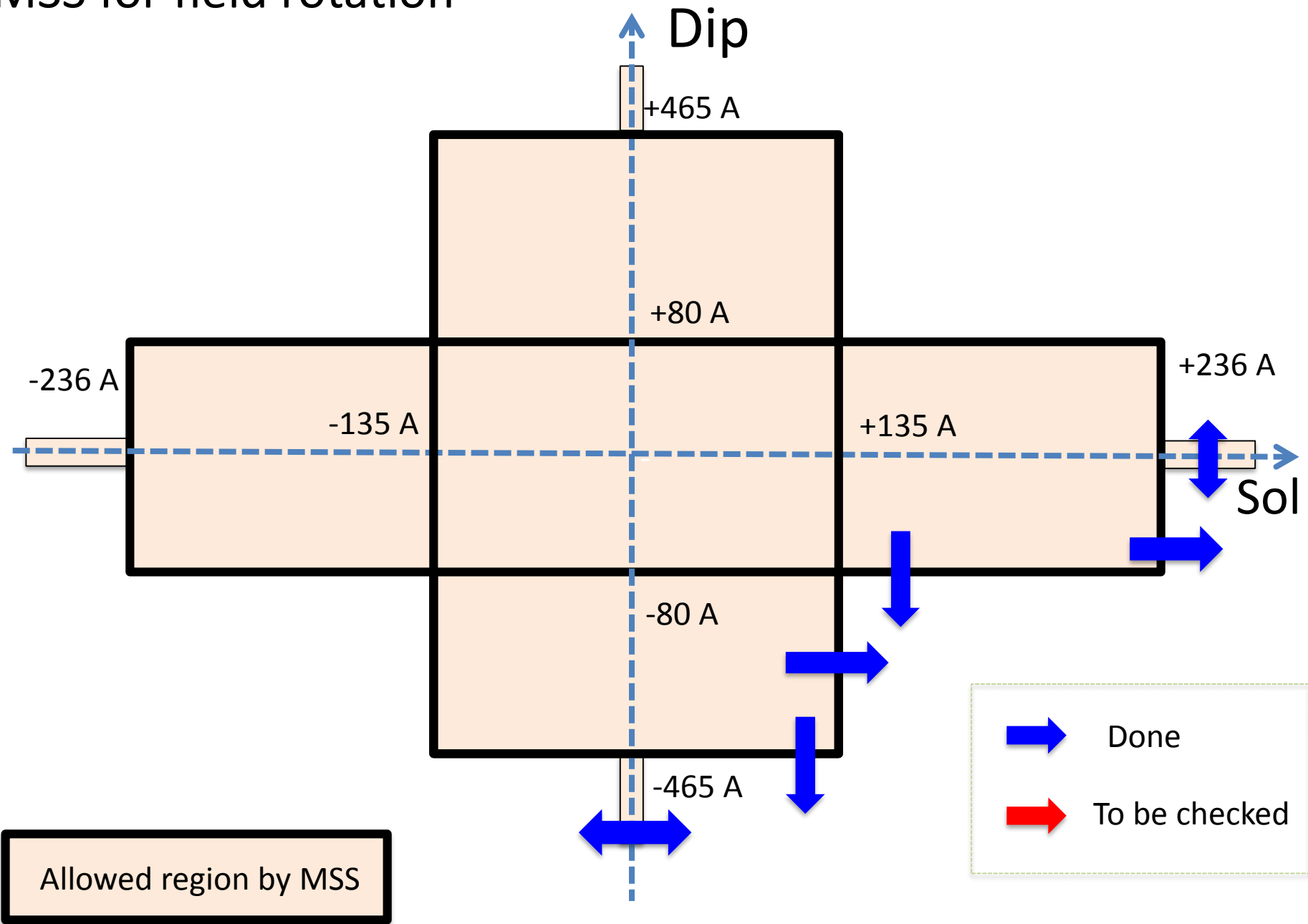
New trim coils operation in 2018 (Field rotation mode)



Trim coils operation in 2018 (Transverse mode)



MSS for field rotation



Pump room intervention

- 15/11 : Intervention started.
(3 weeks in the first planning)
- 19/1 : Scaffold was removed.
- 4/4 : started installation of missing 3 valves
and electrical connections
- 9/4 : operation test

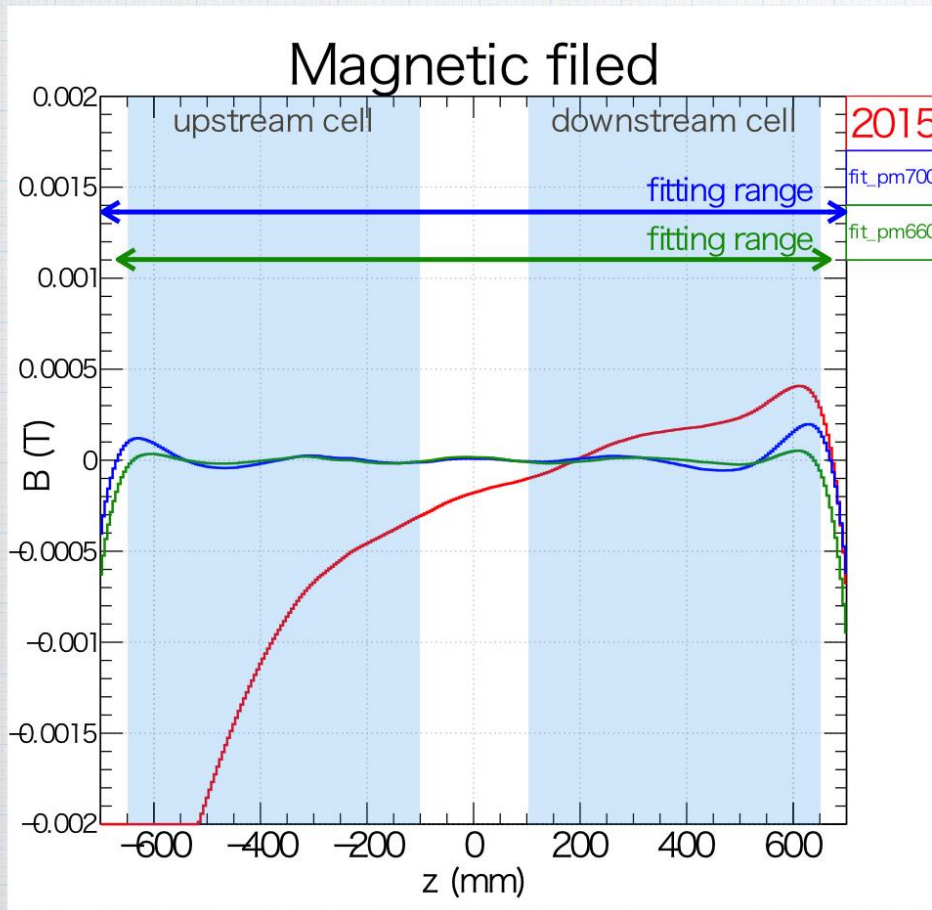
Target loading schedule and preparation

- 17/4 Tue : **target loading**
- 16/4 Mon : loading platform installation
 - LN2 bath, two LN2 dewars, leak detector
- 20/4 Fri : loading platform removal
- 21/4 Sat – 24/4 Tue : TE calibration

- LN2 order
- Gerhard will arrive on Monday.
- The 221 door will Keep key access.
- Scaffold for He3 pumping line installed on Monday

Genki's Calculation of the filed homogeneity with trim coils

Test of optimization of current: Results



fitting function: \boxtimes

$$B(z) = B_{\text{sol}}(z) + \sum I_i \times B_i(z)$$

fixed where \boxtimes

B_{sol} : magnetic field of the solenoid \boxtimes

B_i : magnetic field of the i-th trim coil \boxtimes

I_i : current of the i-th trim coil (A)

Fitting range: [-700, 700] mm \boxtimes

Fitting range: [-660, 660] mm \boxtimes

Current restrictions: \boxtimes

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- $|I_i| < 5 \text{ A}$ \boxtimes

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- same polarity as 2015

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Coil	A	B	C	D	E	F	G	H
#1	~0	3.52	1.55	0.03	~0	0.04	~0	~0
#2	2.95	0.56	1.11	~0	~0	-5.00	2.10	~0

Coil	A	B	C	D	E	F	G	H
#1	0.14	3.25	1.37	0.96	0.13	0.08	-0.44	-0.03
#2	3.03	0.74	0.04	1.79	~0	-5.00	1.53	-0.01

650mm \boxtimes 0.21 (2015) \boxtimes

$|B(z)| =$ 0.01 (fit, [-700, 700] mm) \boxtimes

650mm \boxtimes 0.004 (fit, [-660, 660] mm)

Preparation of COMPASS 2018 DY run

6		9	10	11	12	13		16	17	18	19	20		23	24	25	26	27		30	1	2	3	4		7	8	9	10	11	Caroline.Riedl@cern.ch 2018-04-06	
magnet commissioning																																
target loading																																
target-loading- platform installed																																
target calibration																																
FI01, VI01 (chariot) in beam																																
FI15, FI04, VI02, FI03 installed																																
CEDAR installations																																
beam in EHN2																																
beam available																																
6		9	10	11	12	13		16	17	18	19	20		23	24	25	26	27		30	1	2	3	4		7	8	9	10	11	Caroline.Riedl@cern.ch 2018-04-06	

April 2018

May 2018

April 9-15: muon beam day & night

April 16-20 & 25-27: muon beam with multiple interruptions due to target loading & COMPASS installations; beam in the night

April 28++ hadron beam day & night with increasing intensity + muon beam at certain times

CEDAR installations in the period April 16-25 with access to the beam tunnel:
6 work days 8h during the day

Realistic planning as of April 6, 2018

April 16 (Monday): uncable FI01 & VI01 & move out of beam, install target-loading platform 10:00

April 17 (Tuesday): load target

April 20 (Friday): remove target-loading platform 9:00, move chariot with FI01 & VI01 in beam & cable 10:00

April 21-24 (Saturday - Tuesday morning): TE calibration without beam

April 24 (Tuesday) afternoon: install concrete blocks for SciFis

April 25-27 (Wednesday - Friday): install FI15, FI04, VI02, FI03 + new plane FI15U for beam monitoring

