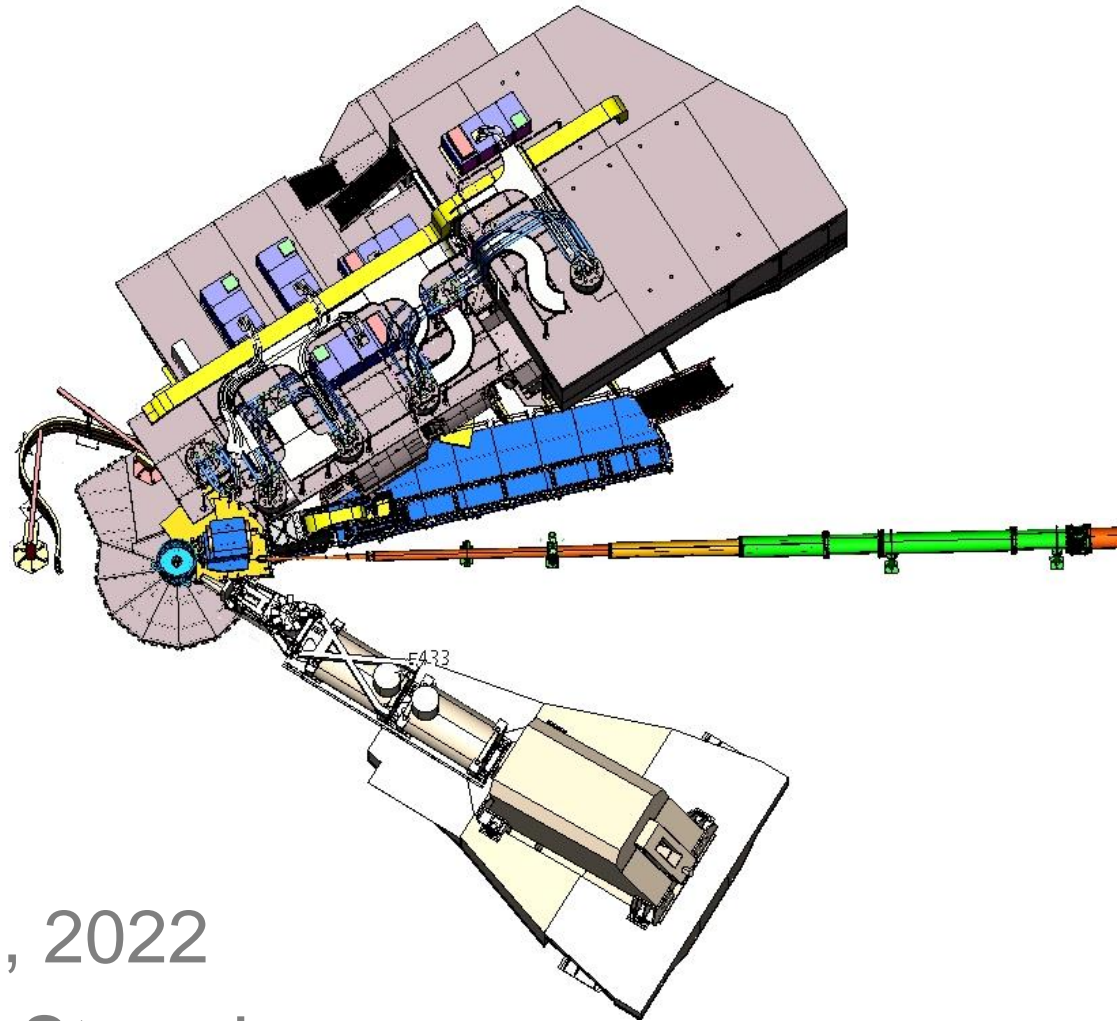


NPS Status



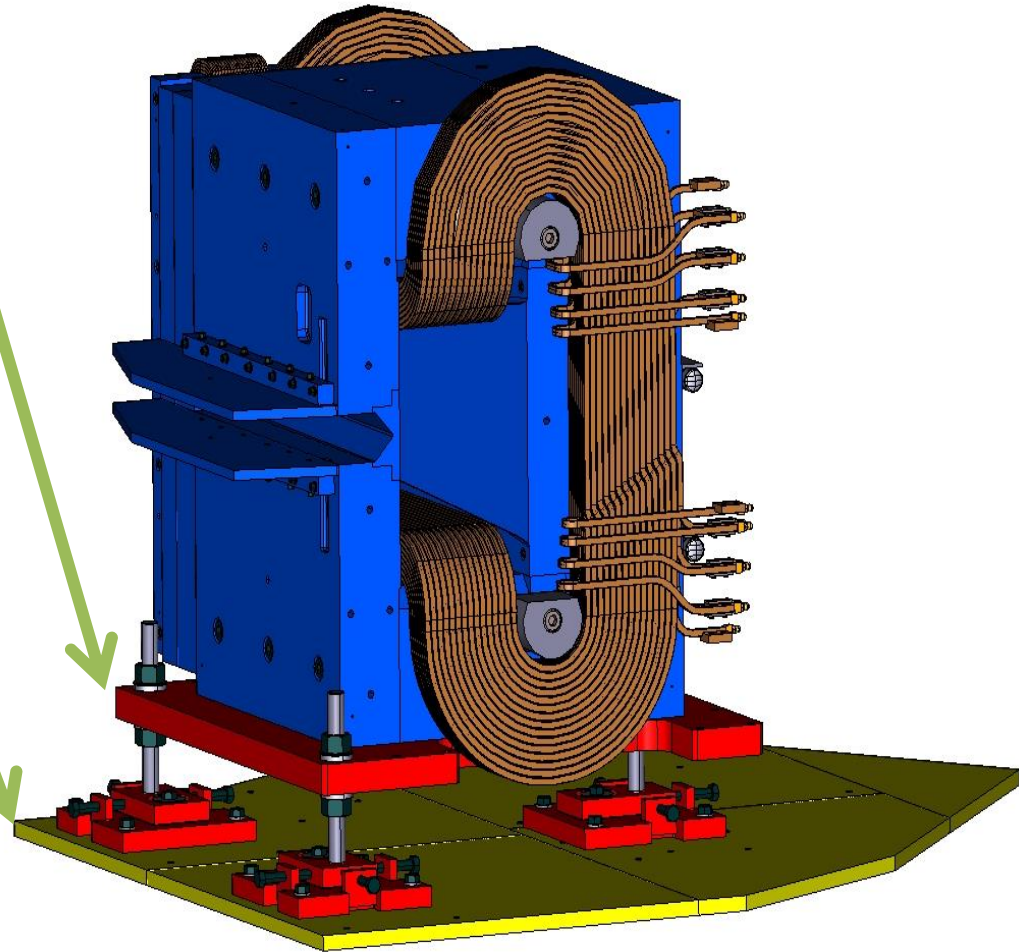
Feb 16, 2022

Paulo M, Steve L

NPS design & purchasing status

Sweeper supporting structure

- Sweeper support assy delivered.
- Base/slide plate assy ordered delivery expected by end of March.



NPS design & purchasing status (cont)

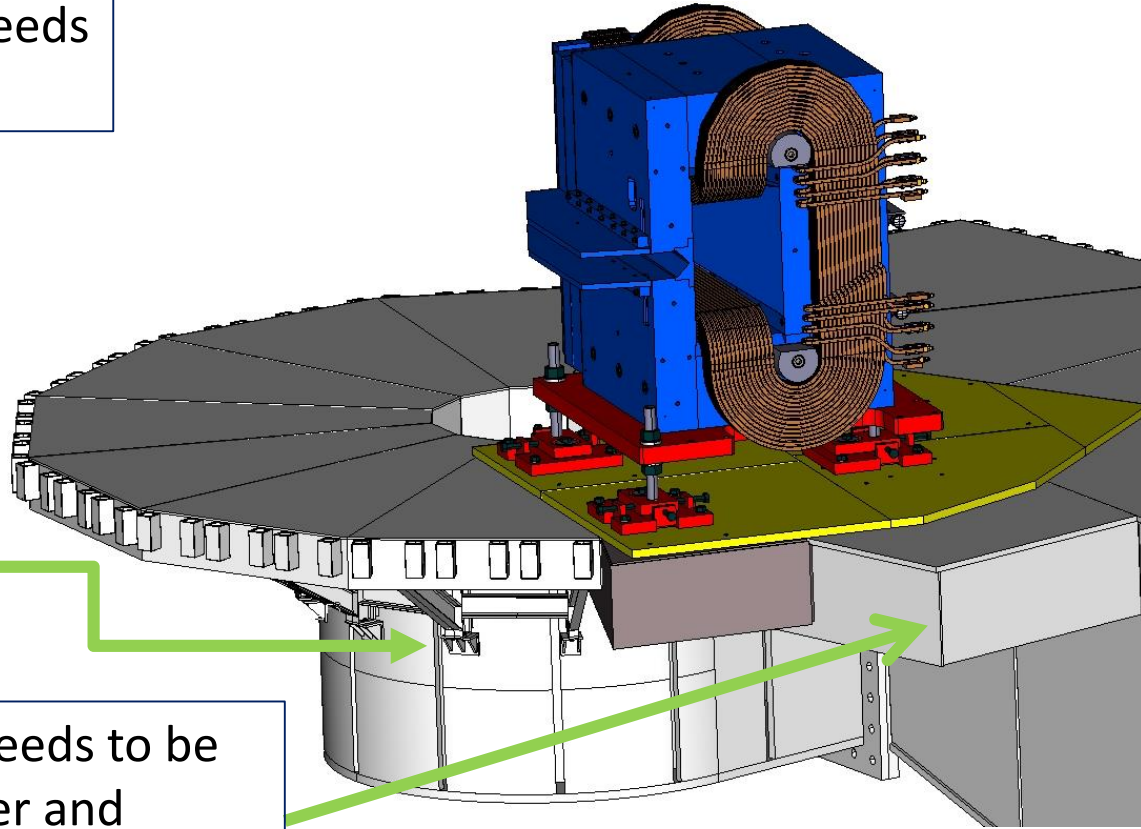
Sweeper supporting structure (cont)

Target access platform support needs to be reinforced.

Could be installed this SAD

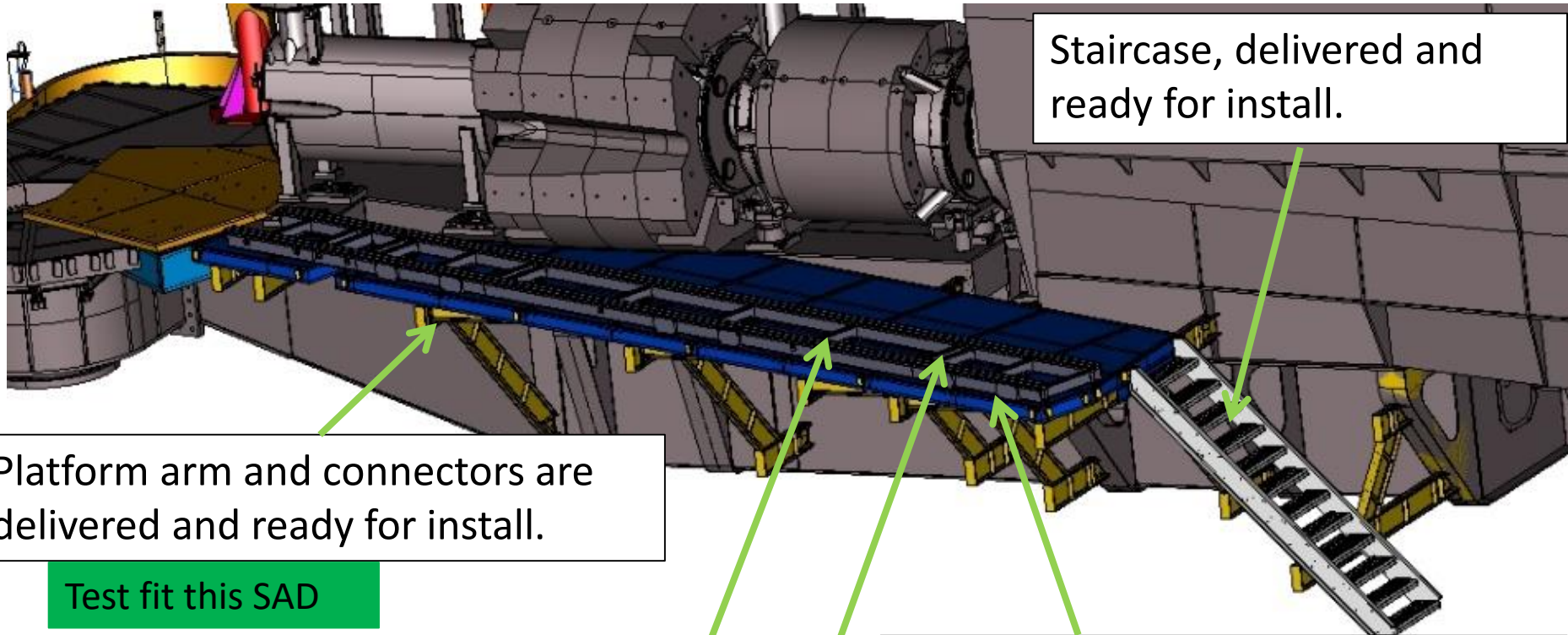
Target access platform section needs to be removed and replaced with larger and heavier duty section.

Could be installed this SAD



NPS design & purchasing status (cont)

Detector supporting structure



Staircase, delivered and ready for install.

Platform arm and connectors are delivered and ready for install.

Test fit this SAD

Rail base weldments are delivered.

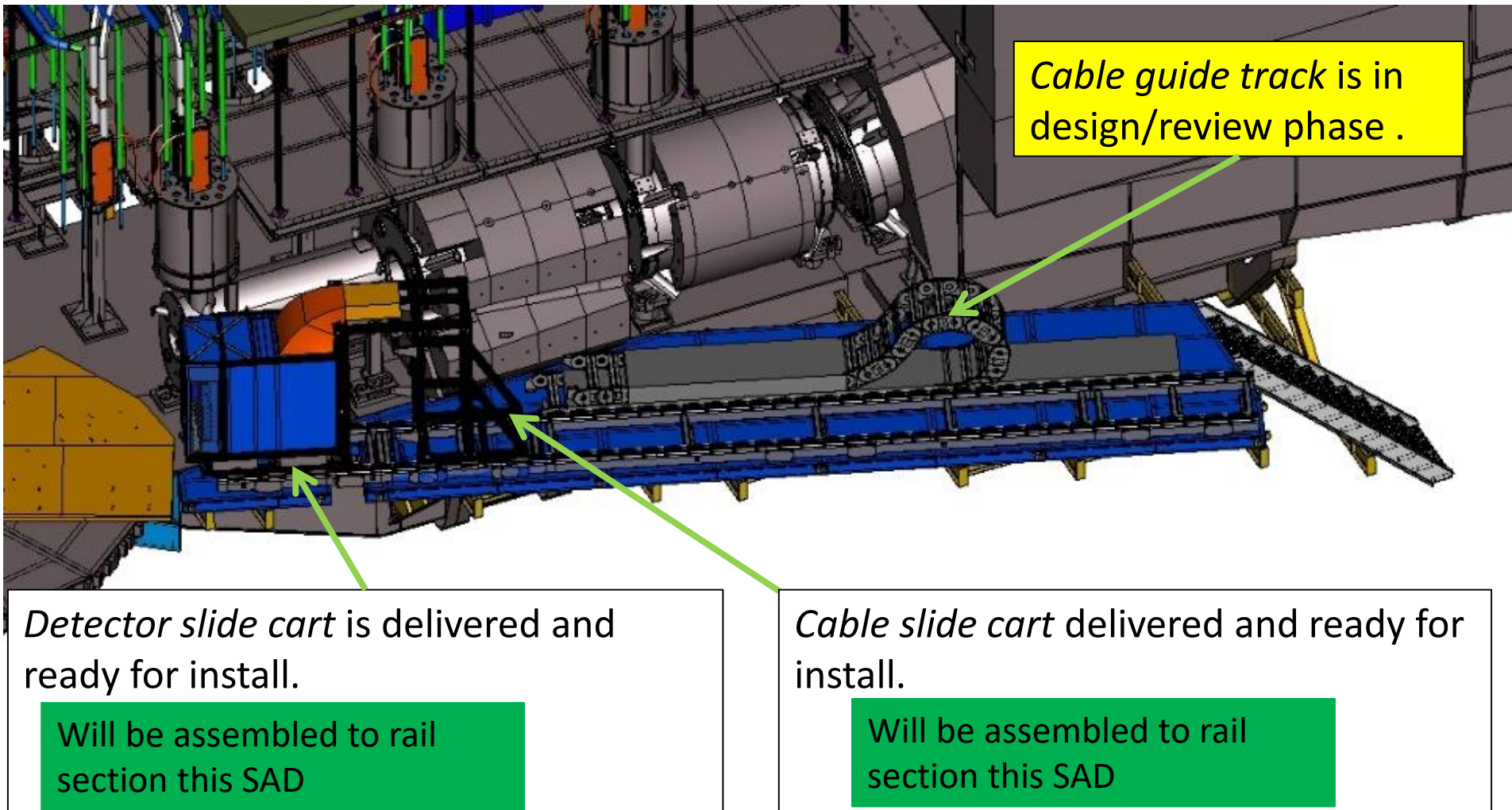
Rails and slides need to be refurbished.

Assembly during this SAD

Platform weldments are delivered and ready for install.

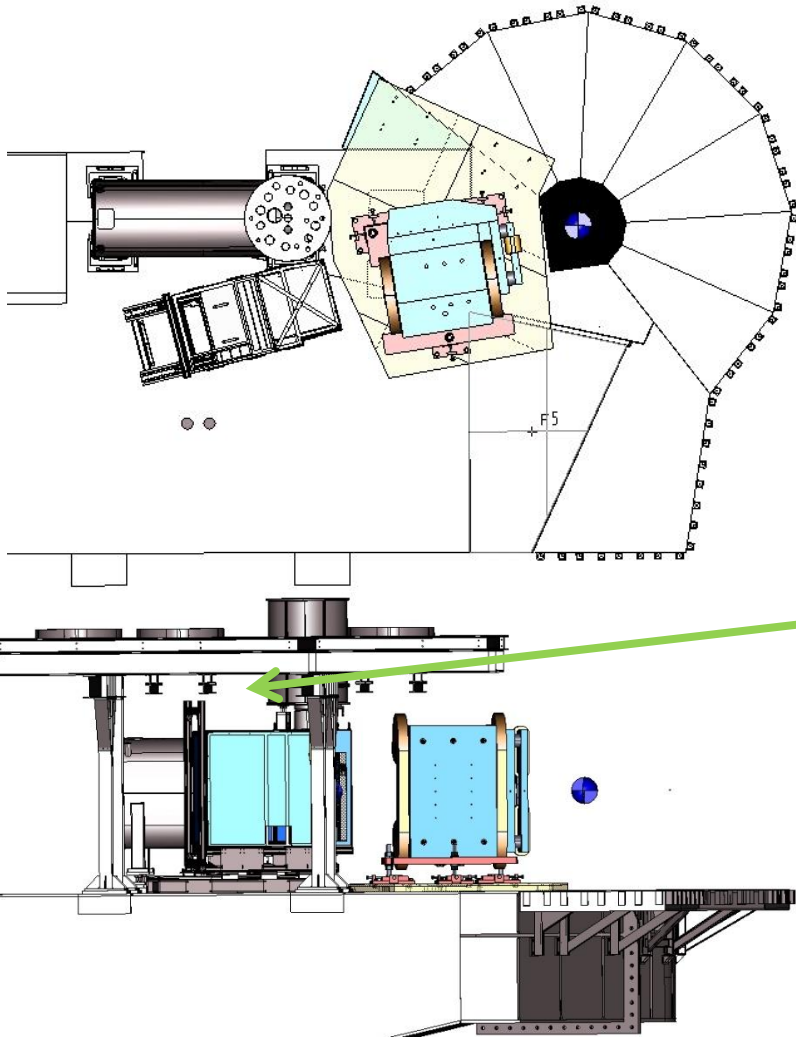
NPS design & purchasing status (cont)

Detector supporting structure (cont)



NPS design & purchasing status (cont)

Detector supporting structure (cont)

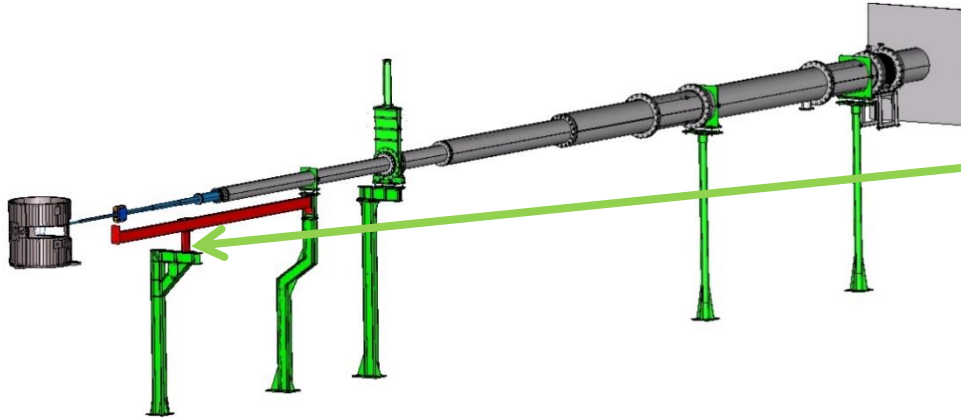


Detector on SHMS left will be kept on a rail section and cart used to position detector in place.

Cables will be supported by underside of SHMS platform. In design/review phase.

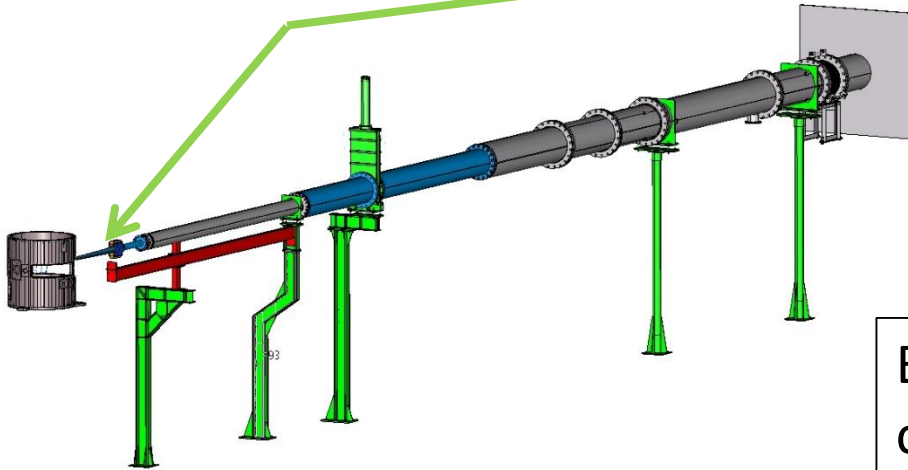
NPS design & purchasing status (cont)

Beam line setup 1 and 2



Beam line support is in design/detail phase.
New vertical support to be made.

Beam line setup-1



Corrector is in design/review phase. Ready for detailing.

Beam line setup-2

Beam line assembly (setup 1 & 2) and components are designed/detailed under review and out for cost estimate.

NPS design & purchasing status (cont)

Out standing tasks

- Complete designs and drawings for cable guide and supporting structure
(4 weeks based on 50% of Designer time).
- Complete detail drawings for detector lifting fixture
(1 week based on 50% of Designer time).
- Complete detail drawings for corrector
(1week based on 50% of Designer time).
- Procure components and materials
(2 weeks based on 50% of Designer time).
- Fabrication estimated to take 8 weeks after all items awarded.

NPS Installation and Setup changes

- Installation for first setup (SHMS right setup) expected to take 4 weeks. Includes removing HB magnet
- Moving detector in different setups using same side setup will take a day with survey support.
- Moving Sweeper magnet in same side setup will take a day with survey support.
- Relocating magnet and detector to SHMS left side setup, will take 3 days and 4th day to make connections.

NPS SAD-22 Work Planned

- Pull rails from Physics Storage and clean. Sections assembled for detector platform under carriage.
- Weld support brackets to SHMS. (Detectors OK for SHMS welding?)
- Test fit of deck and support arm braces.
- Install Handrail sockets on deck.
- SHMS roof block cutting
- Install additional Target access platform support bracing
- Install new Target platform section wedge.

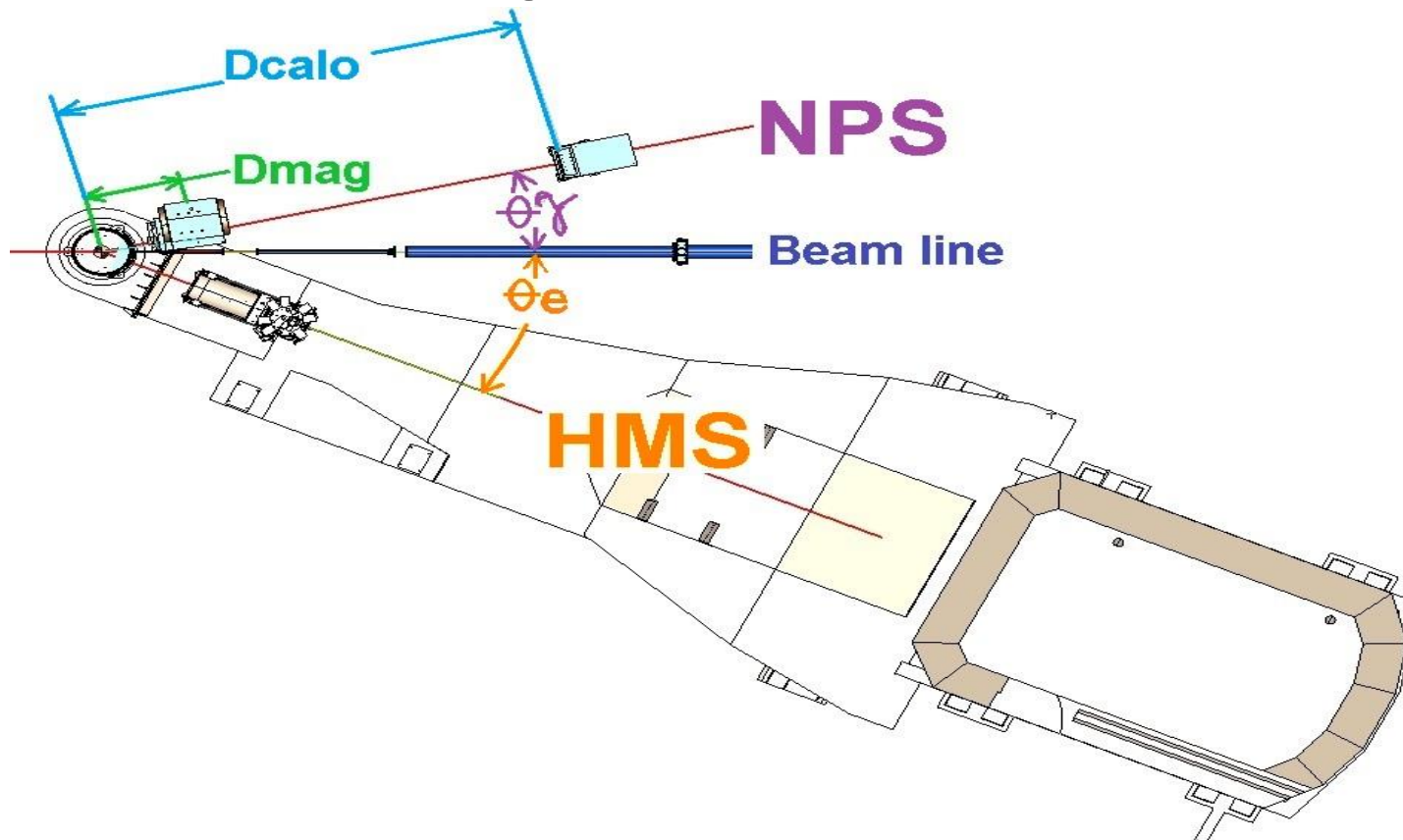
NPS Layout configurations

θ_γ = angle between beam and NPS

θ_e = angle between beam and HMS

D_{mag} = distance between target center and sweeper center

D_{calo} = distance between target center and detector face



NPS Layout configurations_(cont)

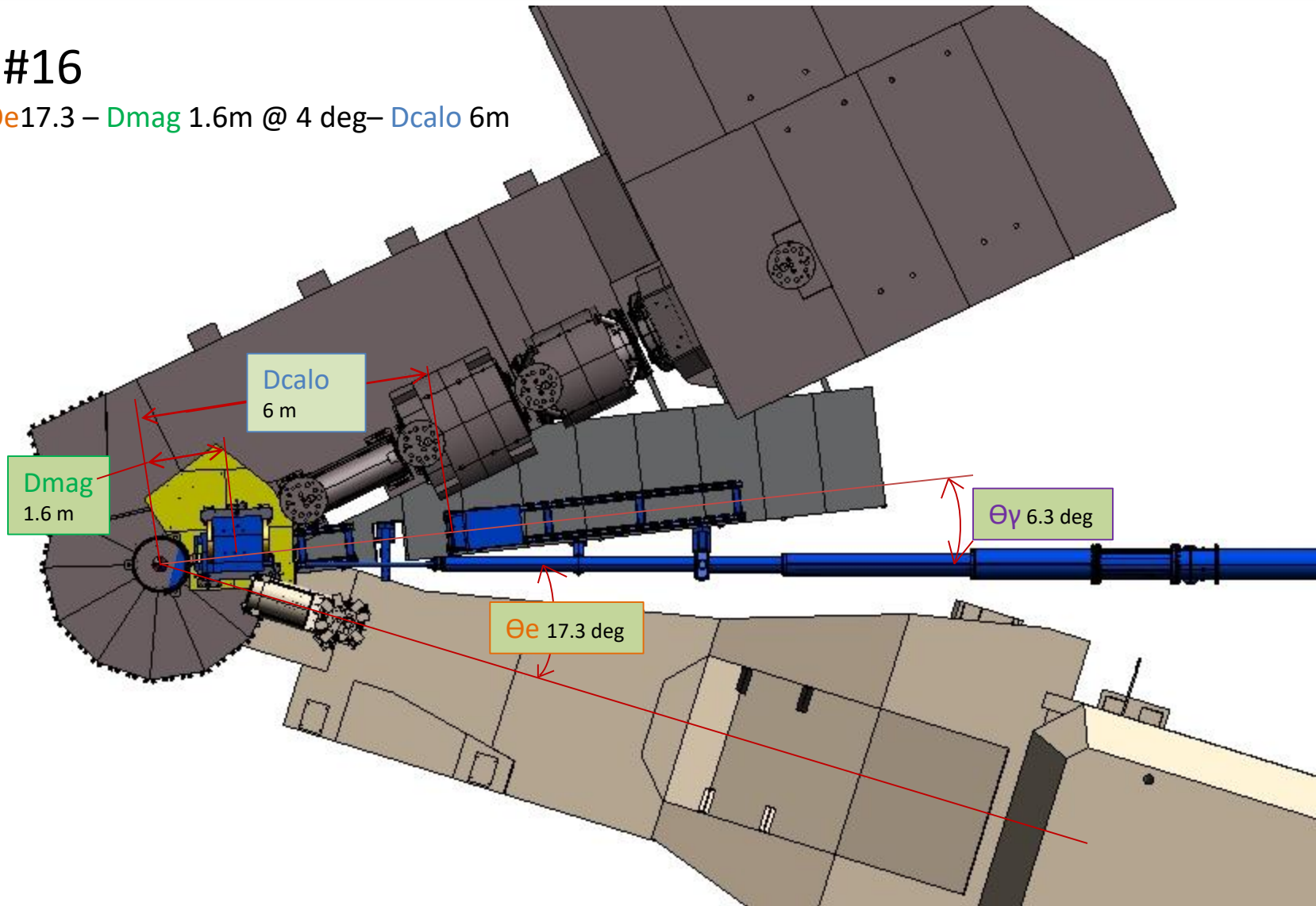
SETTING	NPS location	NPS angle (deg)	HMS angle (deg)	D magnet (m)	D calorimeter (m)	Magnet angle (deg)	Beam energy (GeV)	Beam current (uA)	Time (hours)	BEAMLINE SETUP
7	SHMS right	21.7	11.7	1.6	3.0	5.5	11	28.0	48	1
11	SHMS right	19.8		1.6	3.0	5.5	11	28.0	120	1
12F	SHMS right	17.2	17.84	1.6	6.0	4.0 or 5.5	11	28.0	240	1
8E	SHMS right	16.6	15.65	1.6	3.0	5.5	11	28.0	120	1
3B	SHMS right	16.2	11.7	1.6	3.0	5.5	11	28.0	96	1
5C	SHMS right	12.4	15.30	1.6	3.0	5.5	11	28.0	72	1
15A	SHMS right	10.6		1.6	4.0	4.0 or 5.5	11	50.0	24	1
17D	SHMS right	7.9	24.15	1.6	3.0	5.5	11	50.0	120	1
13	SHMS right	6.3	27.90	1.6	6.0	4.0	11	11.0	24	1
16	SHMS right	6.3	17.30	1.6	6.0	4.0	11	11.0	24	1
6	SHMS right	20.2		1.6	3.0	5.5	8.8	28.0	72	1
10	SHMS right	17.8		1.6	3.0	5.5	8.8	28.0	24	1
2	SHMS right	14.7		1.6	3.0	5.5	8.8	28.0	96	1
4	SHMS right	10.3		1.6	4.0	4.0 or 5.5	8.8	50.0	24	1
14	SHMS right	9.2		1.6	4.0	4.0 or 5.5	8.8	5.0	24	1
9	SHMS right	13.8		1.6	3.0	5.5	6.6	28.0	120	1
1	SHMS right	11.7		1.6	3.0	5.5	6.6	28.0	24	1

NPS Layout configurations_(cont)

SETTING	NPS location	NPS angle (deg)	HMS angle (deg)	D magnet (m)	D calorimeter (m)	Magnet angle (deg)	Beam energy (GeV)	Beam current (uA)	Time (hours)	BEAMLINE SETUP
4A	SHMS right	14.2	40.1	1.6	9.0	4.0 or 5.5	8.8	5	20	2
4B	SHMS right	17.9	33.7	1.6	7.0	4.0 or 5.5	8.8	15	20	2
4C	SHMS right	22.5	27.8	1.6	5.0	4.0 or 5.5	8.8	30	20	2
5A	SHMS right	11.0	41.7	1.6	11.0	4.0 or 5.5	11	20	15	2
5B	SHMS right	13.8	35.3	1.6	8.0 (9.0?)	4.0 or 5.5	11	30	20	2
5C	SHMS right	16.9	30.0	1.6	7.5	4.0 or 5.5	11	60	20	2
5D	SHMS right	19.7	26.3	1.6	6.0	4.0 or 5.5	11	60	40	2
4E	SHMS left	34.0	18.9	1.6	4.0	5.5	8.8	60	50	2
5E	SHMS left	29.9	17.8	1.6	4.0	5.5	11	60	120	2
4D	SHMS left	26.9	23.7	1.6	4.0	5.5	8.8	60	30	2
	E12-06-114	Larger @ 2.2GeV/pass	Smaller @ 2.2GeV/pass				2.1 GeV/pass			
48_J1	SHMS right	13.79	18.83	1.6	3.0	?	10.617	30	70	1
60_J1	SHMS right	11.76	33.17	1.6	3.0	?	8.517	30	200	1
60_J2	SHMS right	14.76	21.64	1.6	3.0	?	10.617	30	170	1
60_J3	SHMS right	6.41	57.77	1.6	4.0	?	8.517	50	300	1

NPS Layout configurations_(cont)

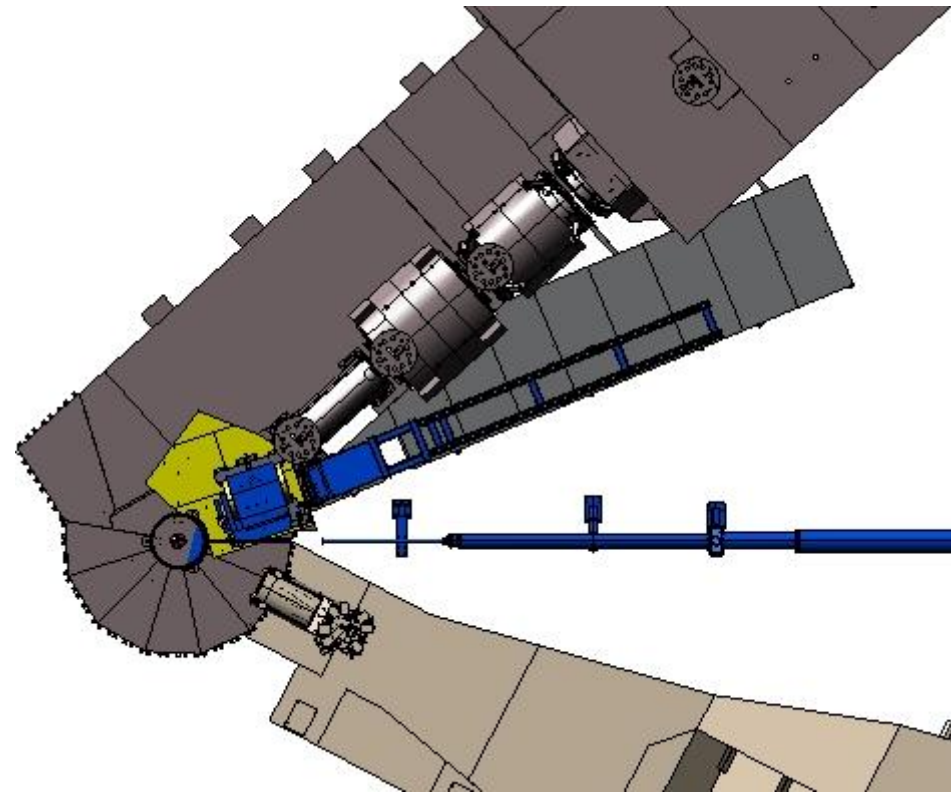
- DVCS #16
- $\Theta_{\gamma} 6.3$ – $\Theta_e 17.3$ – $D_{mag} 1.6\text{ m}$ @ 4 deg – $D_{calo} 6\text{ m}$



NPS Layout configurations_(cont)

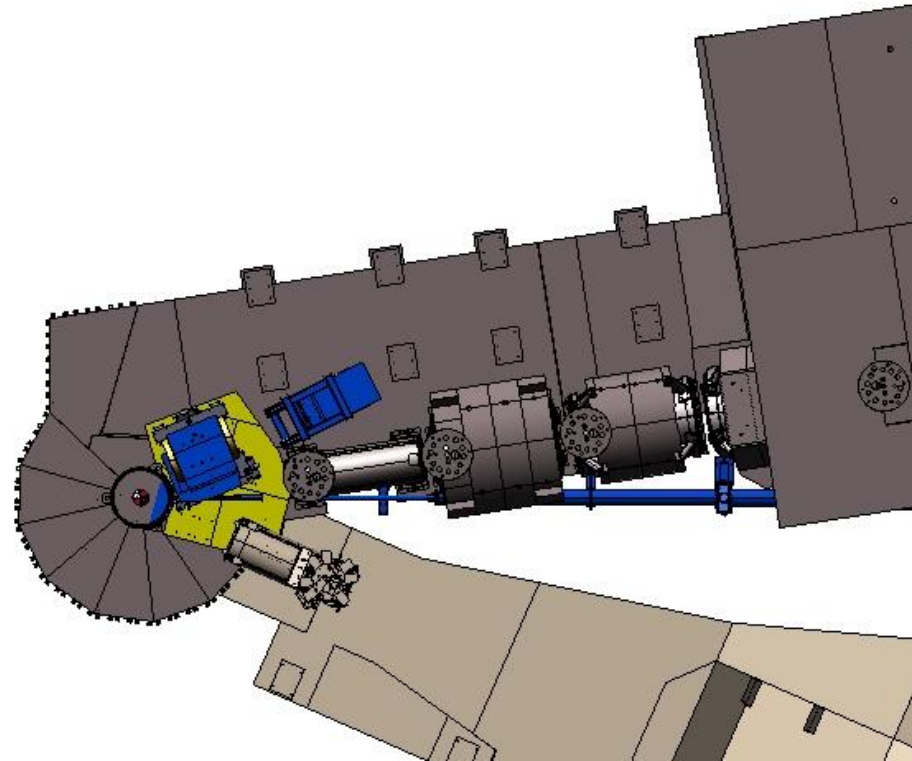
- WACS/PION #4C

- $\Theta_y 22.5 - \Theta_e 27.8 - D_{mag} 1.6m @ 4 \text{ or } 5.5 \text{ deg}$
 $D_{calo} 3m$



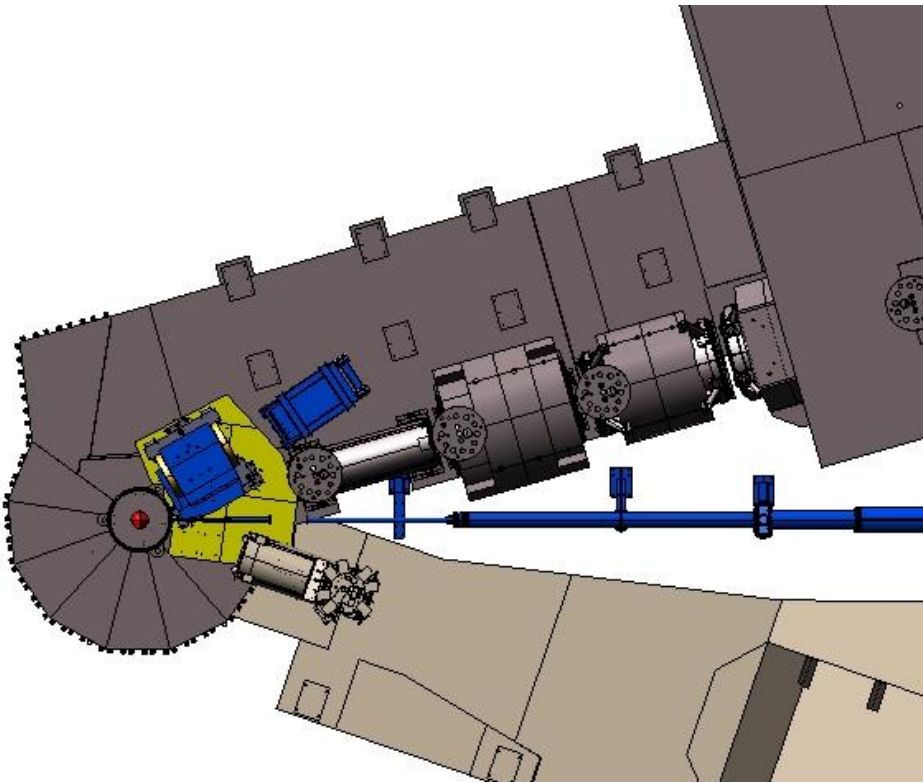
- WACS/PION #4D

- $\Theta_y 26.9 - \Theta_e 23.7 - D_{mag} 1.6m @ 5.5 \text{ deg}$
 $D_{calo} 4m$

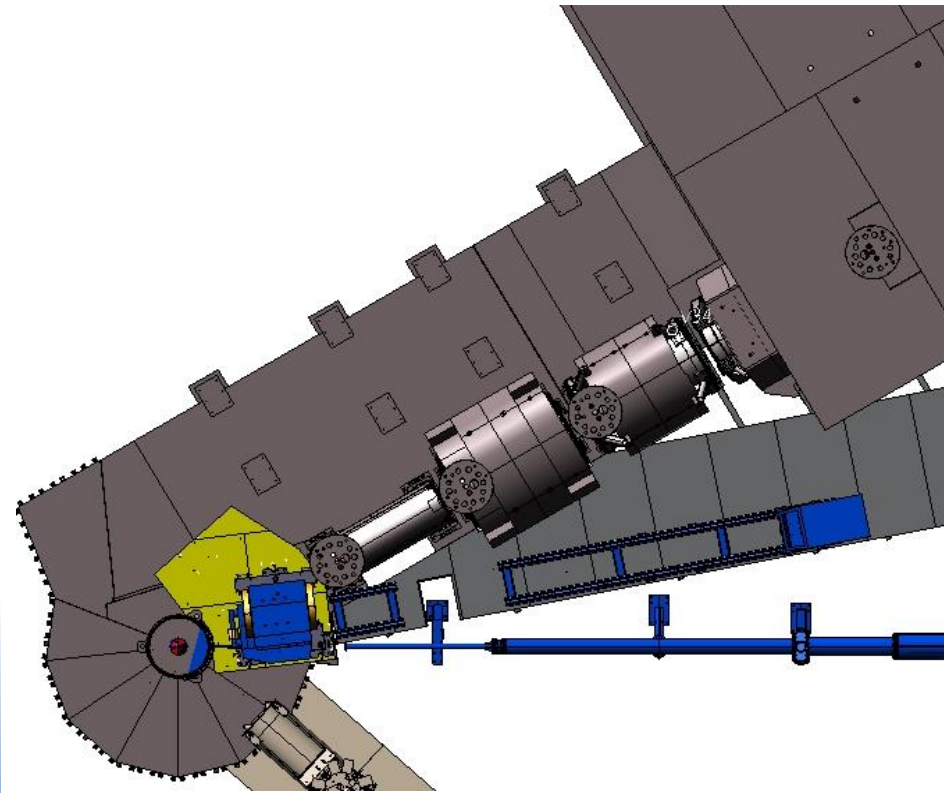


NPS Layout configurations_(cont)

- WACS/PION #4E
- $\Theta\gamma 34.0 - \Theta e 18.9 - D_{mag} 1.6m @ 5.5 \text{ deg}$
 $D_{calo} 4m$



- WACS/PION #5A
- $\Theta\gamma 11.0 - \Theta e 41.7 - D_{mag} 1.6m @ 4 \text{ or } 5.5 \text{ deg}$
 $D_{calo} 11m$



NPS design & purchasing status summary

- Sweeper base/slide is delivered and ready for install.
- Sweeper base plate is ordered (delivery by end of March).
- Target access platform reinforcement in detail/review phase (70%).
- Platform access staircase delivered and ready for install.
- Detector slide cart delivered and ready for install.
- Cable slide cart delivered and ready for install.
- Beam line design and detailing is complete, need to be signed off and all items are out for cost estimate.
- Corrector in design phase (40%).
- Cable layout and support structure in design/review phase.