

Vessel Systems and Target Station Shielding Installation Plan

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April 21, 2025

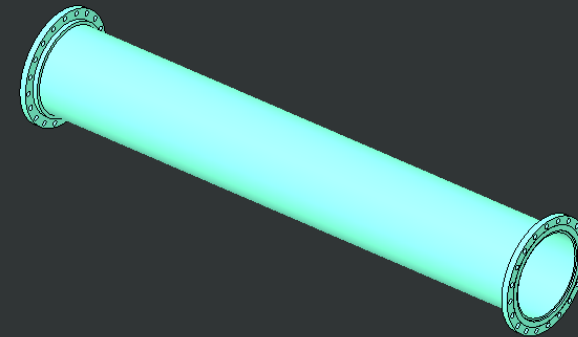


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FOR THE US DEPARTMENT OF ENERGY

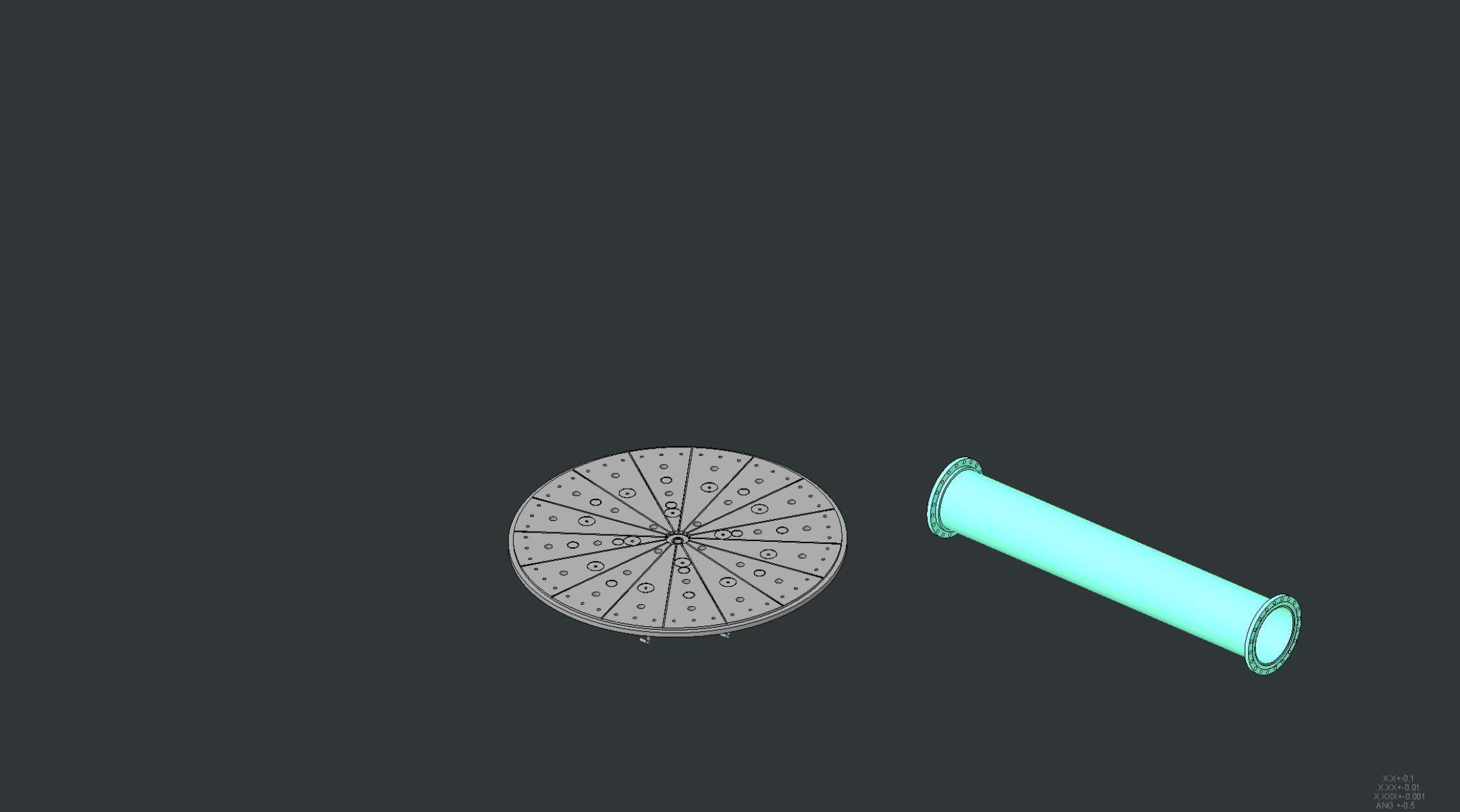


Proton Beam Tube pipe imbedded in concrete (not shown)



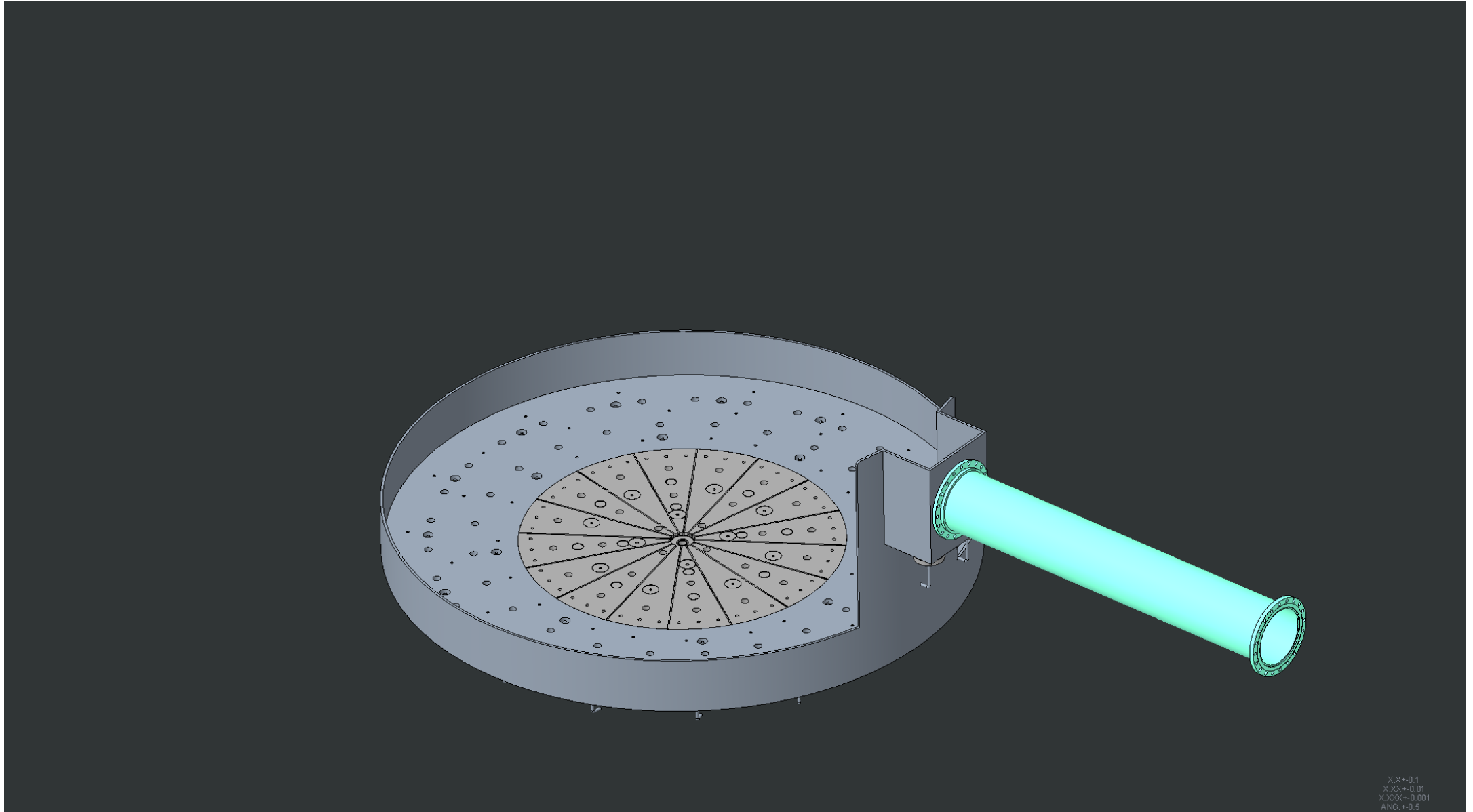
XX+0.1
XXX+0.01
XXXX+0.001
ANG +/-0.5

Core Vessel Baseplate Installed

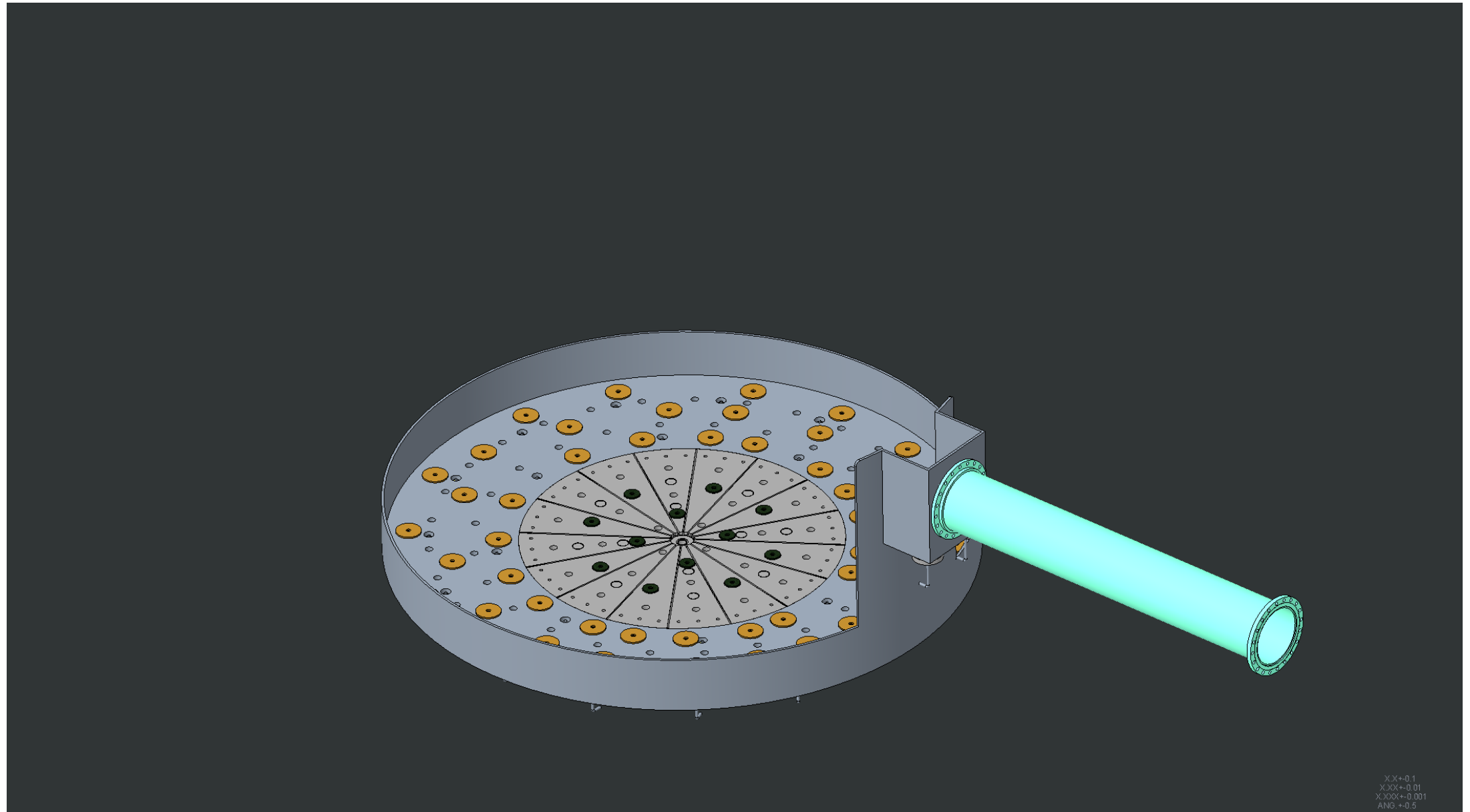


XX+0.1
XX+0.01
XXX+0.001
ANG. +0.5

Bulk Shielding Liner Installed

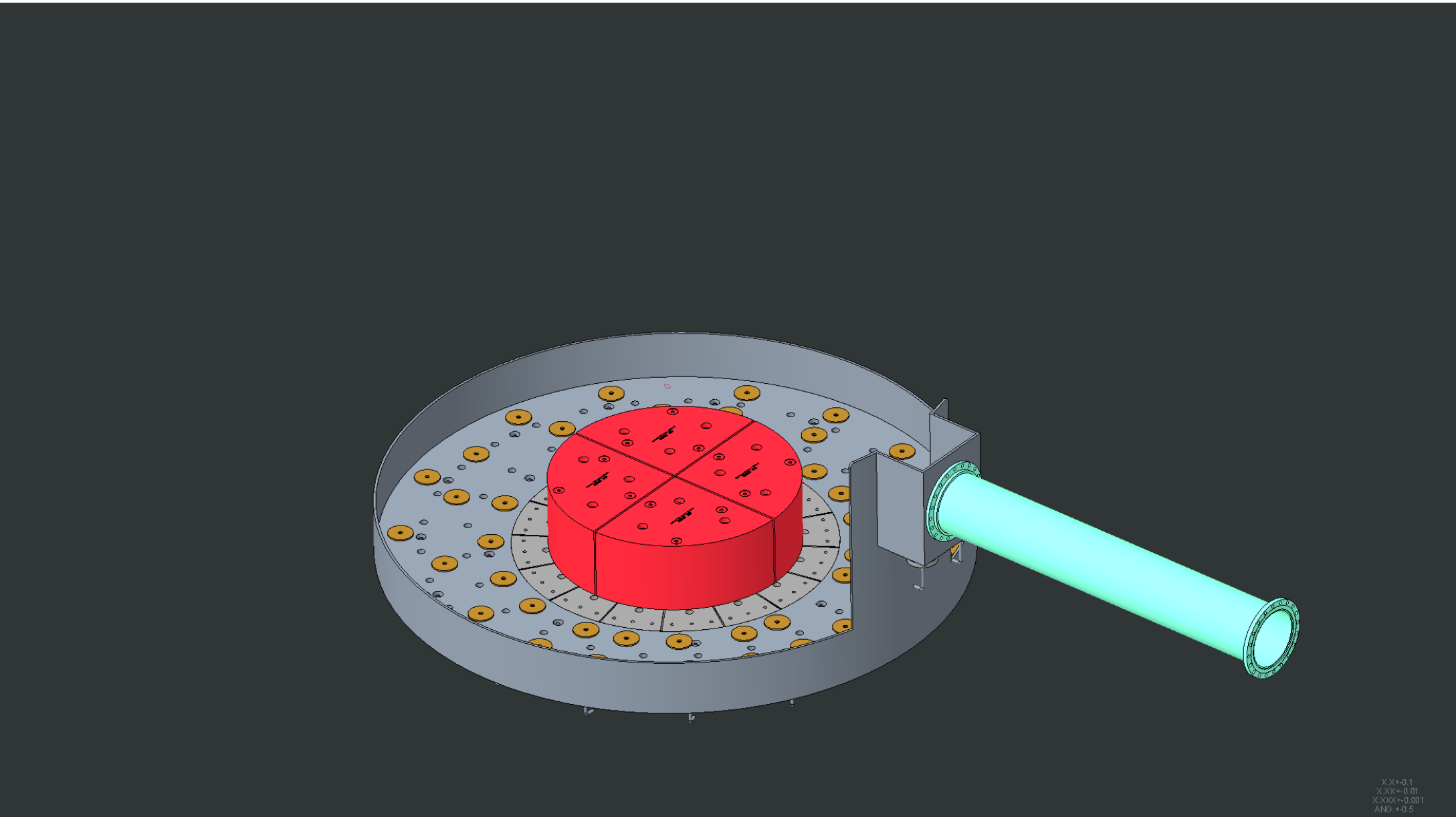


Bulk shielding layer 1 bottom shims installed



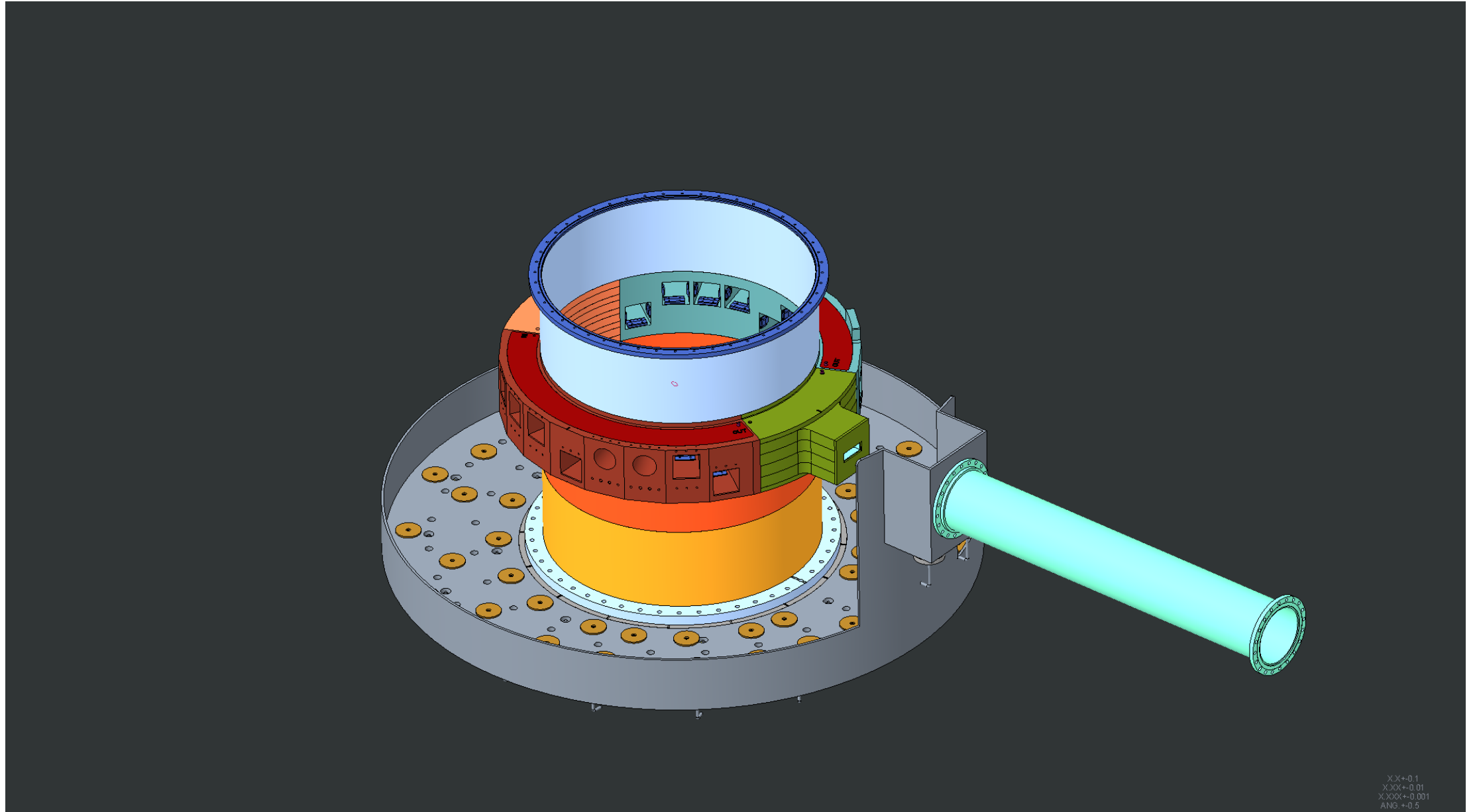
XX+0.1
XX+0.01
XXX+0.001
ANG. +0.5

Layer 1 shield blocks under Core Vessel installed



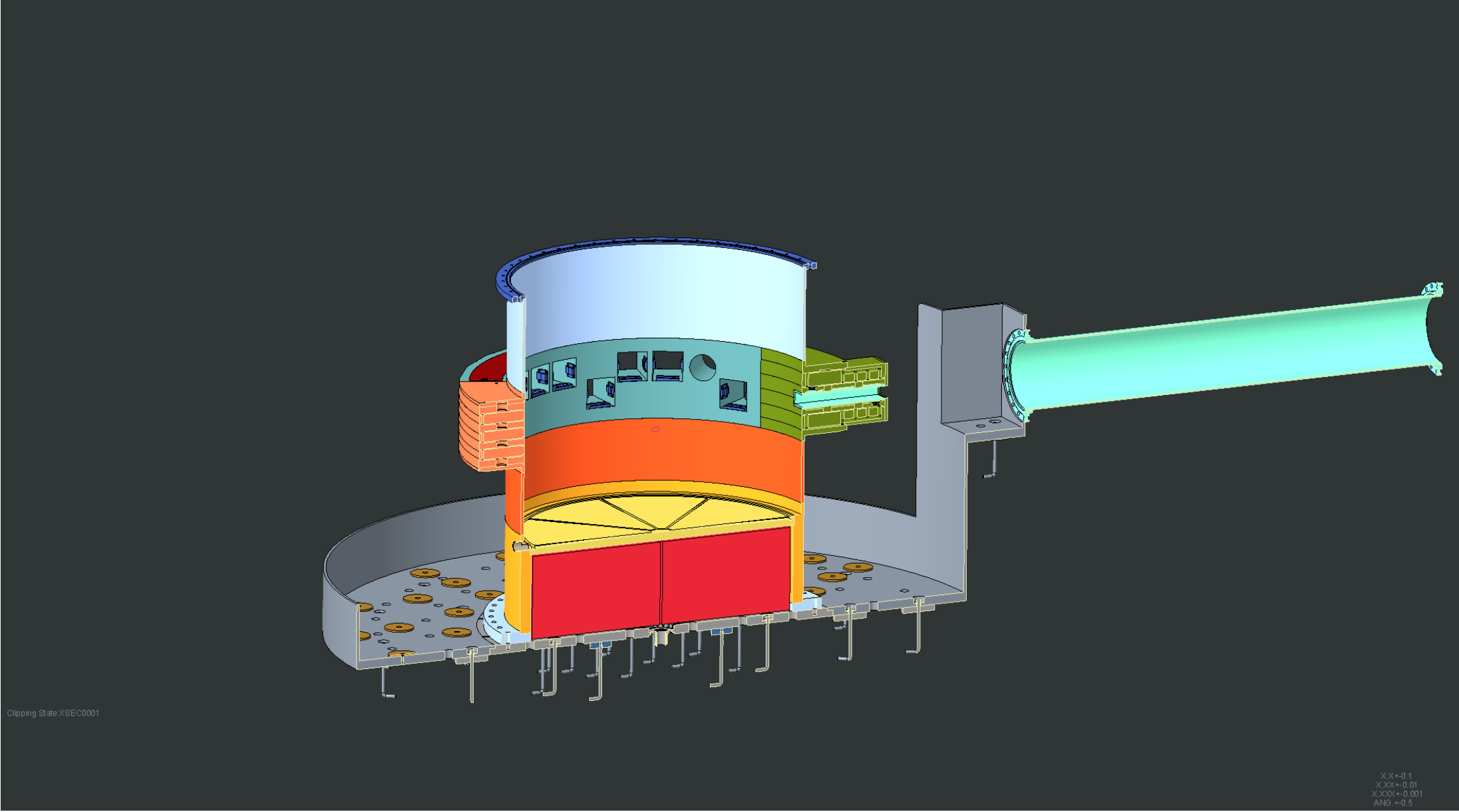
XX+0.1
XXX+0.01
XXXX+0.001
ANG. +0.5

Lower Core Vessel weldment installed

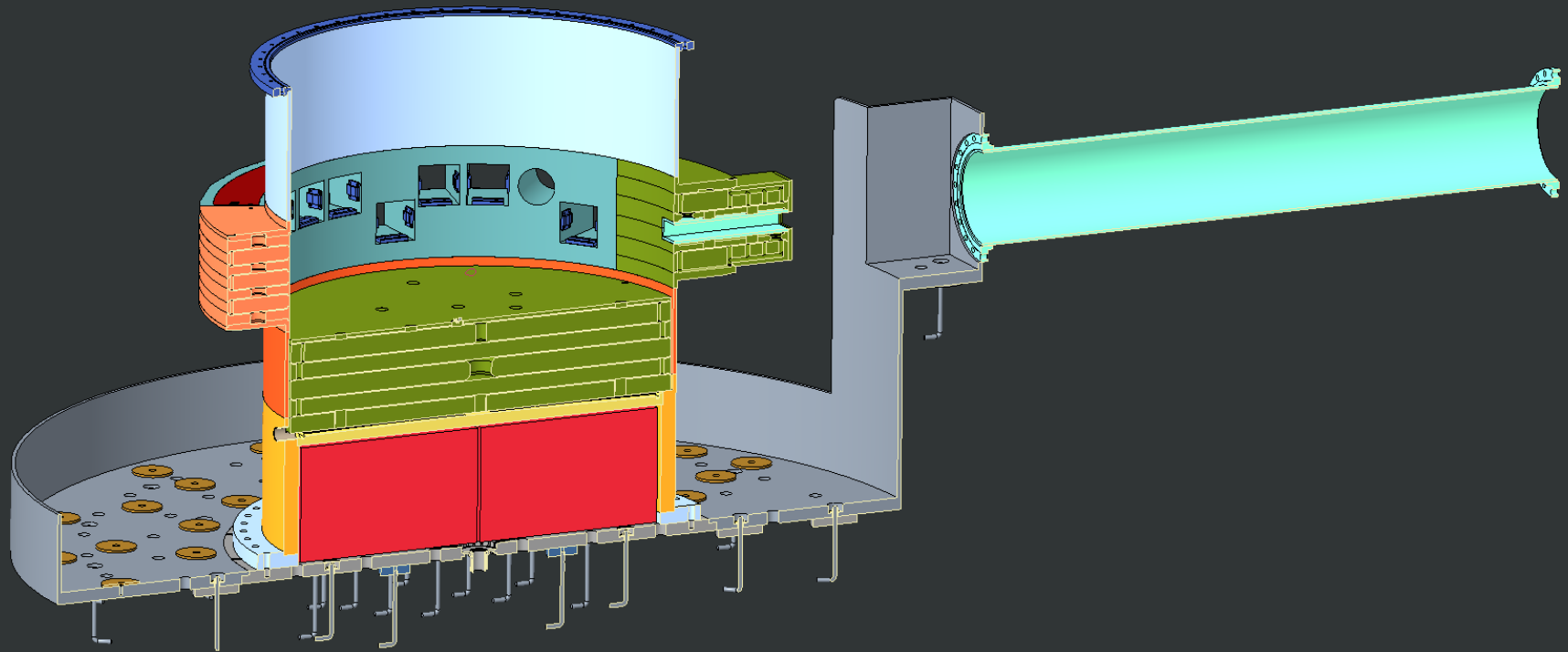


XX+0.1
XXX+0.01
XXXX+0.001
ANG +/-0.5

Cross Section view of lower Core Vessel installation



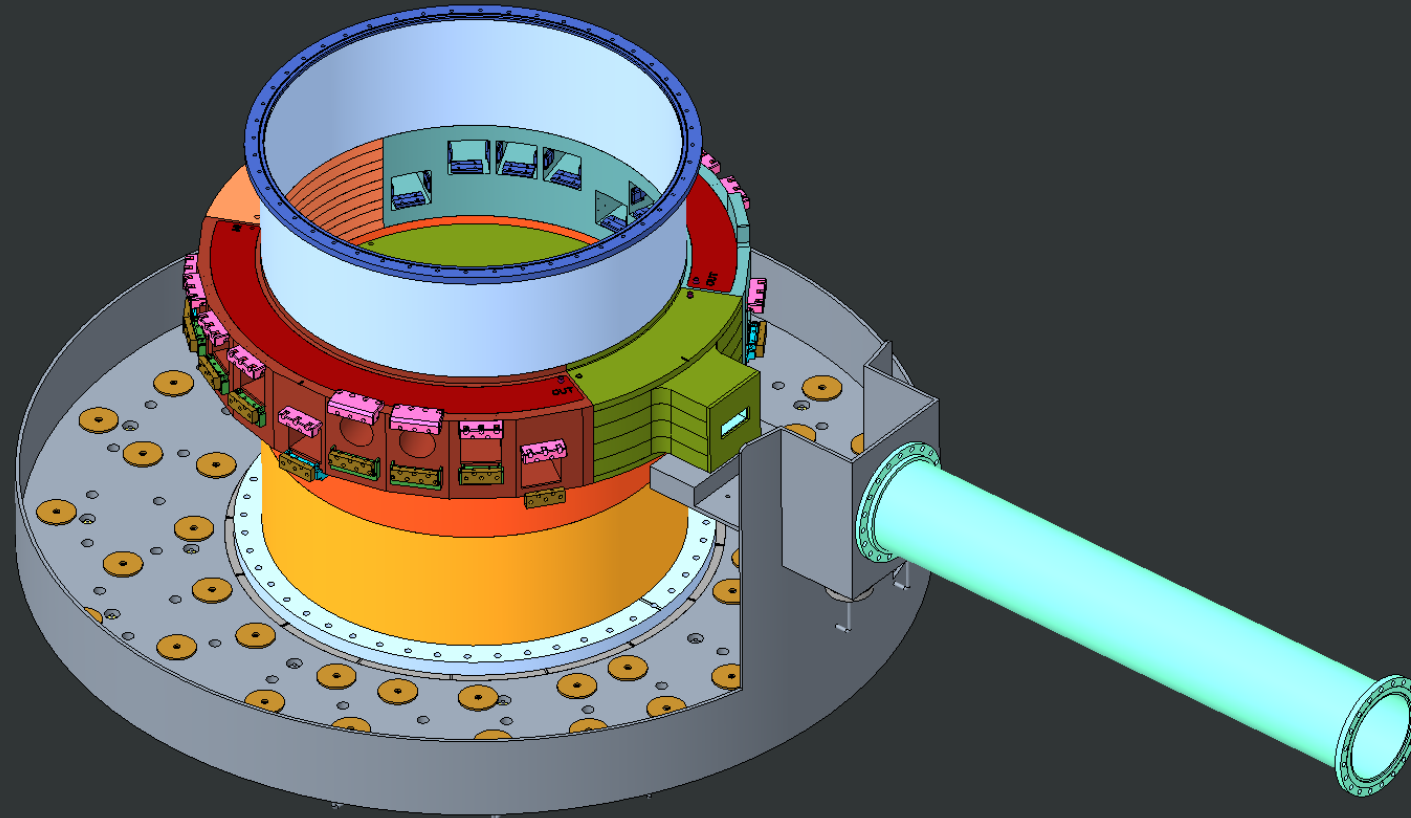
Core Vessel internal shield block #1 installed



Clipping State: XSEC0001

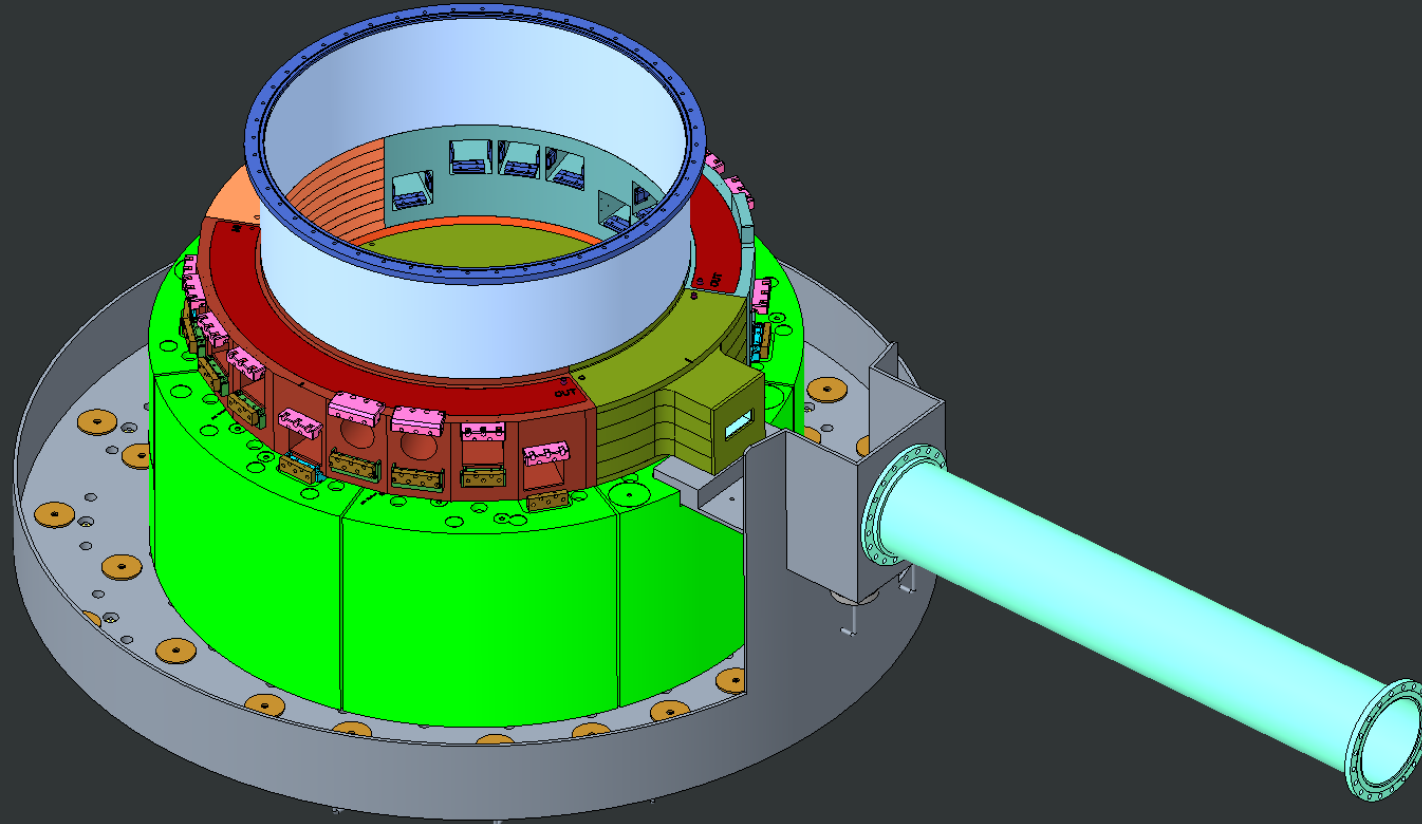
XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

Nozzle extension mounting hardware shown out of sequence



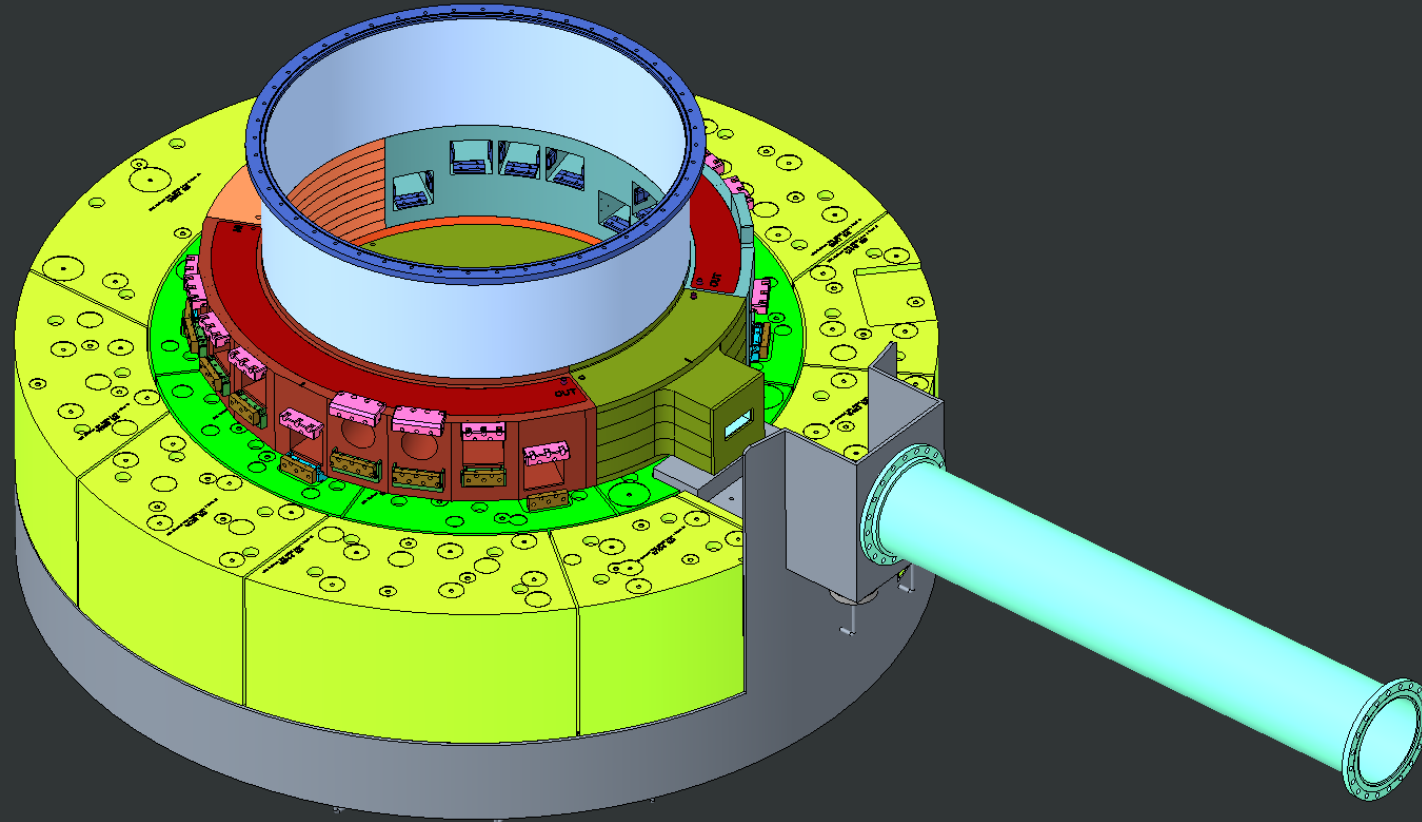
XX+0.1
X.XX+0.01
X.XXX+0.001
ANG. +0.5

Inside course of Bulk Shielding Layer #1 installed



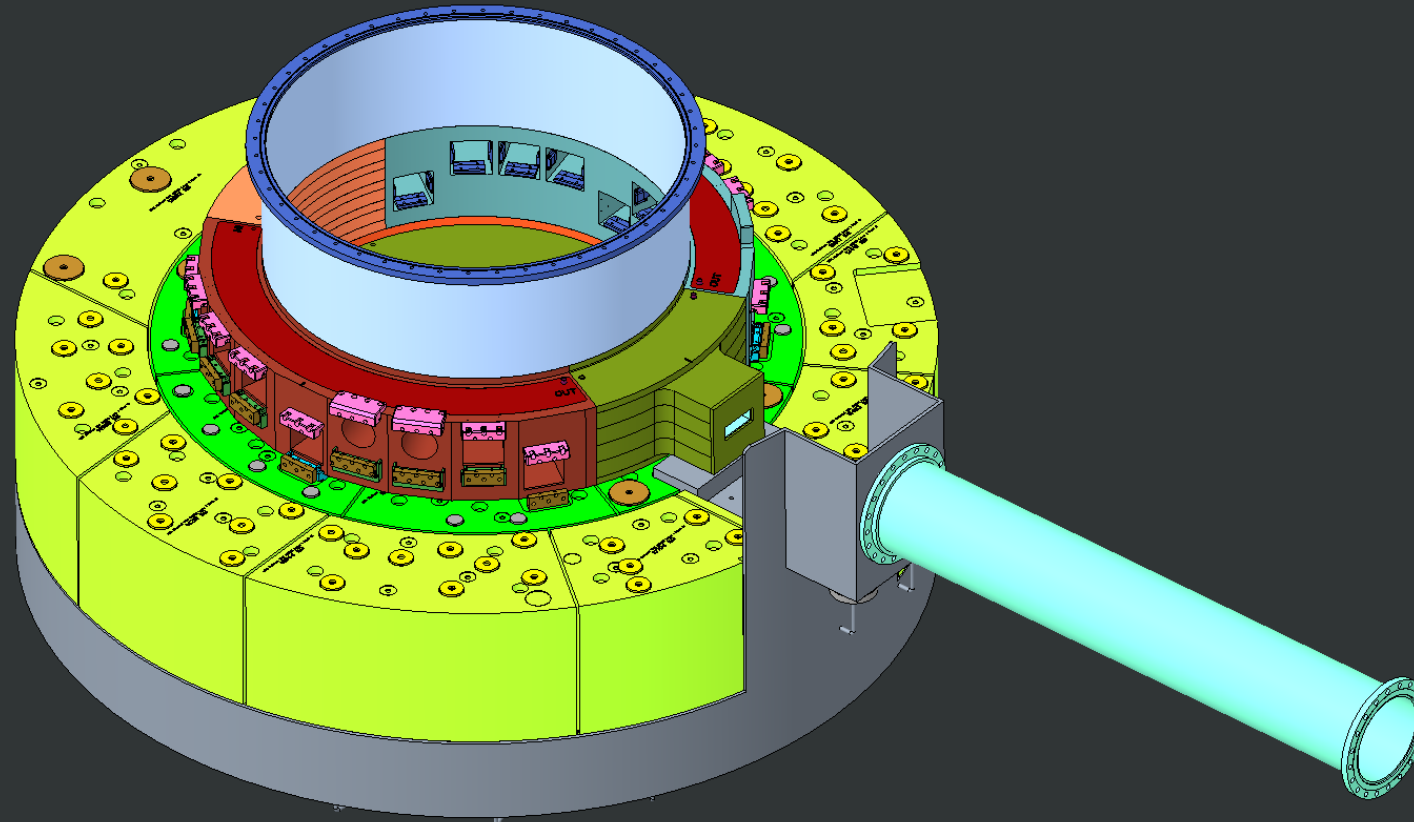
XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

Outer course of Bulk Shielding layer #1 installed



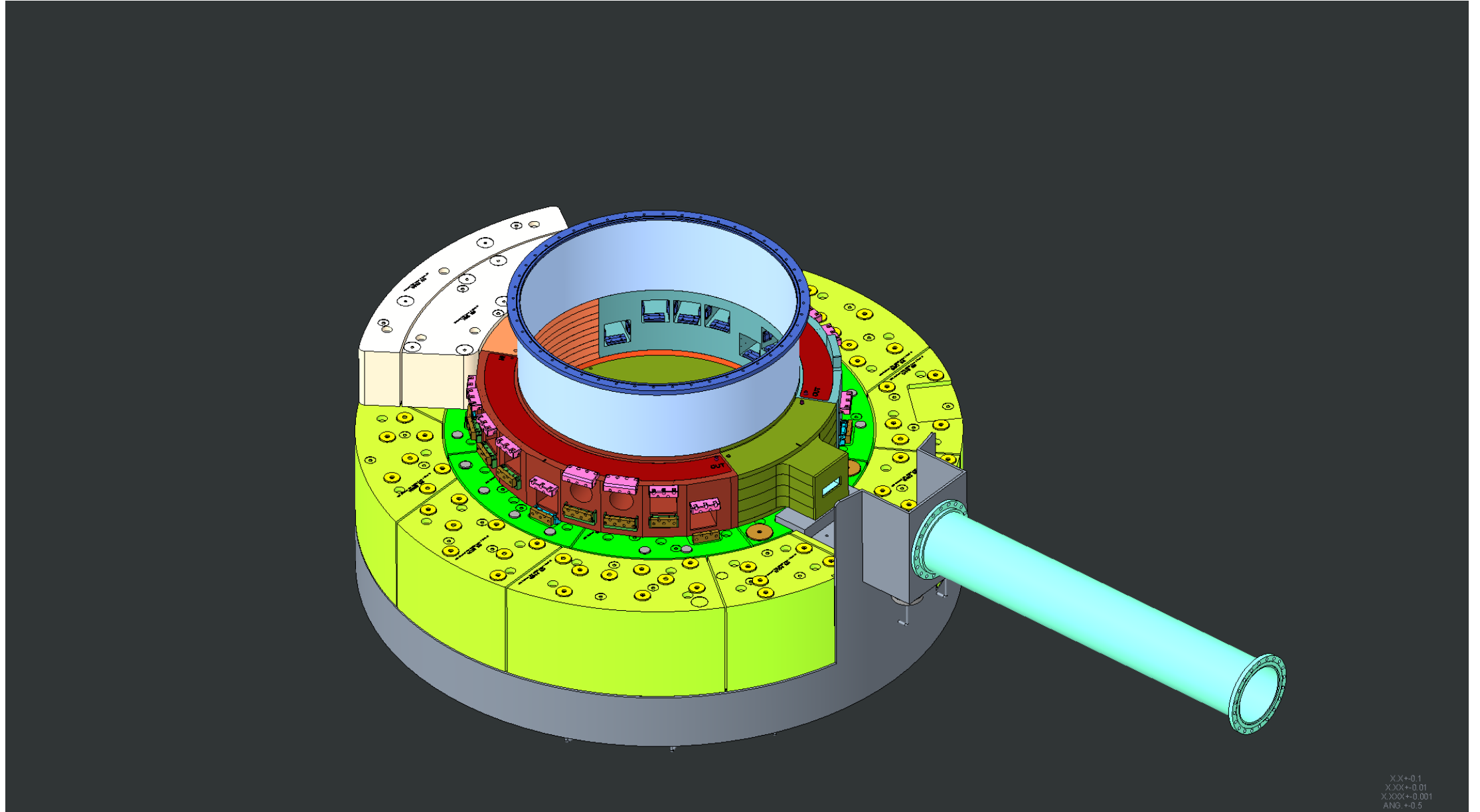
XX+0.1
X.XX+0.01
X.XXX+0.001
ANG +0.5

Layer 2 shim pucks installed

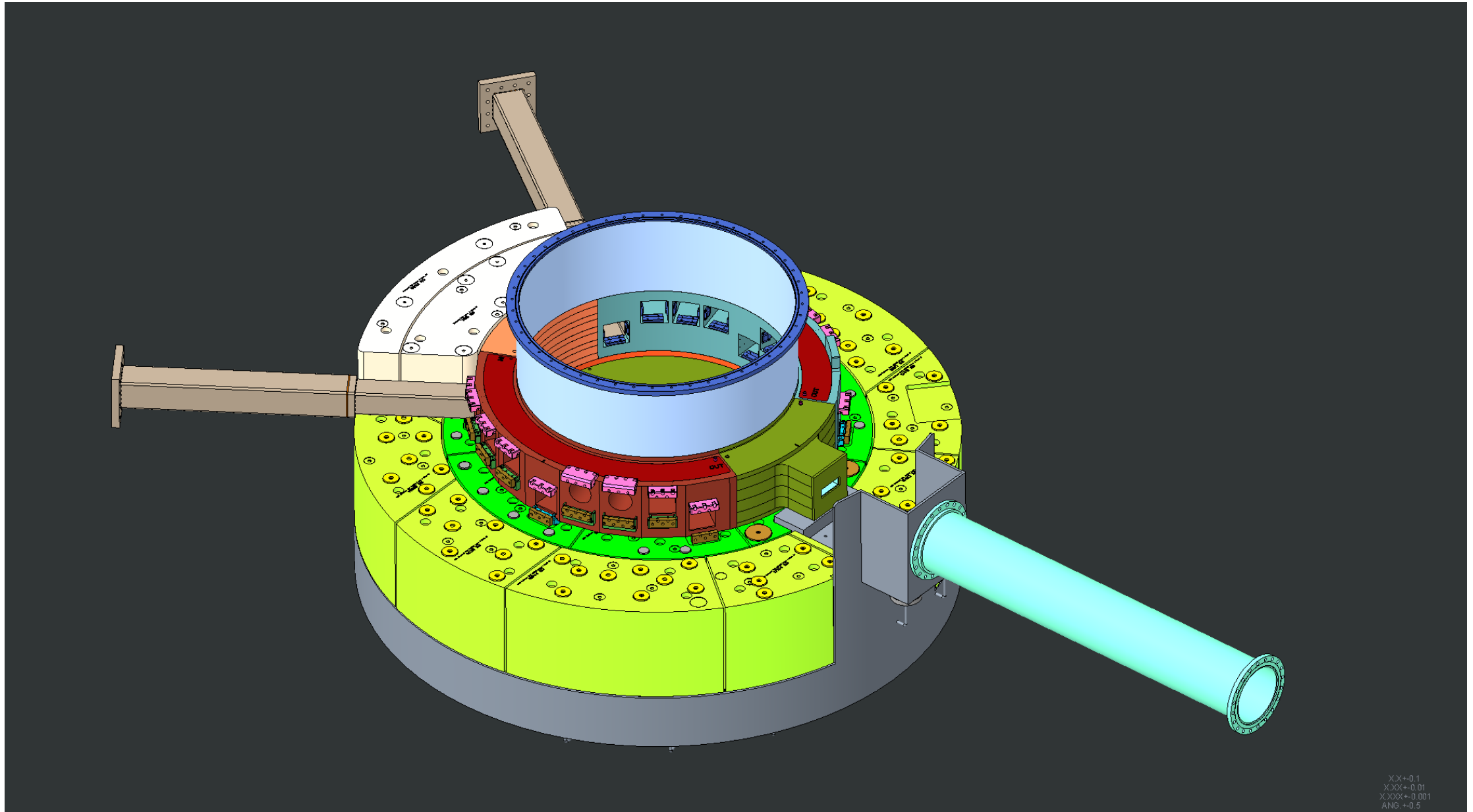


XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

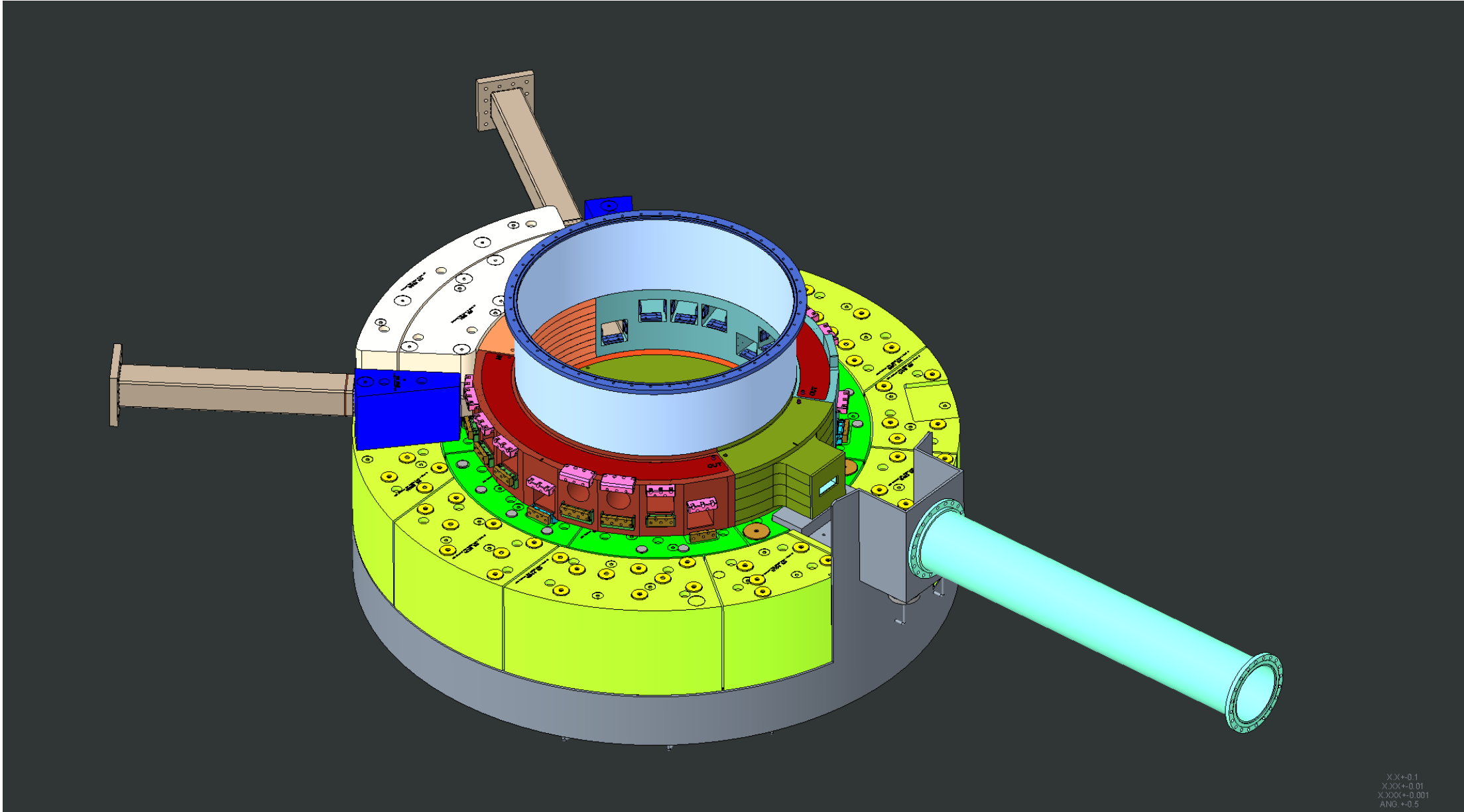
Bulk Shielding layer #2 downstream blocks installed



Nozzle Extensions #9 and #10 installed

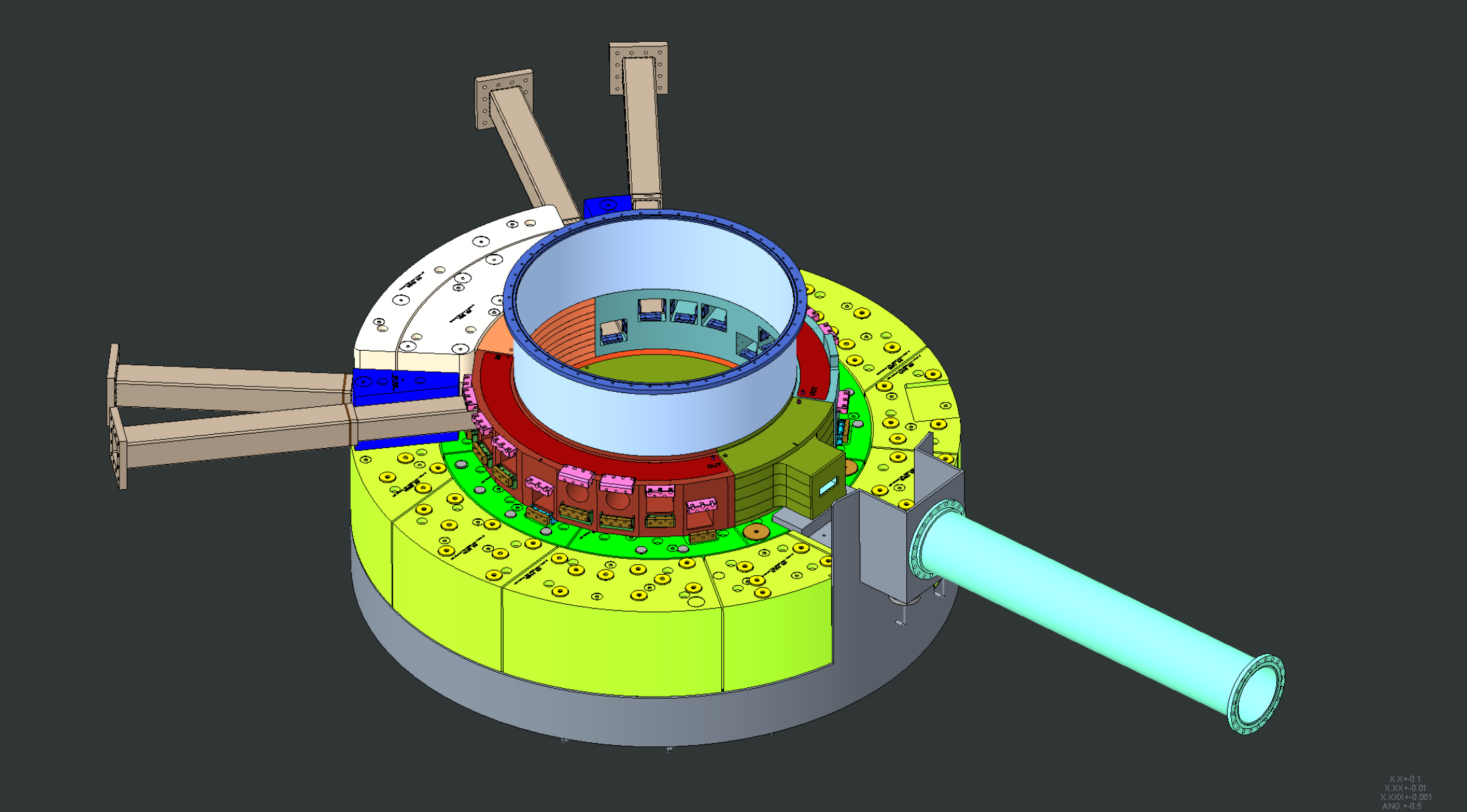


Shielding around Nozzle Extensions #9 and #10 installed



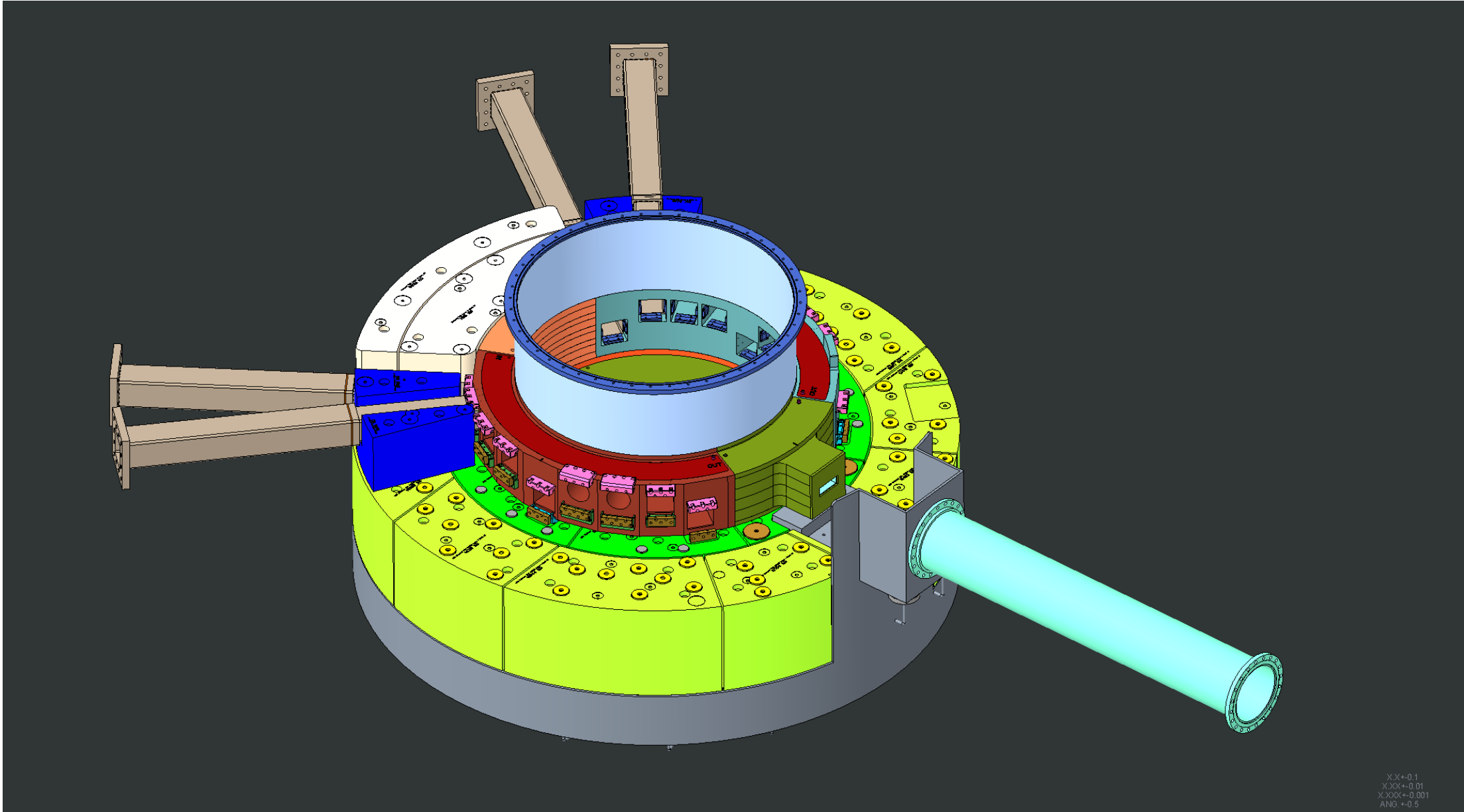
XX+0.1
XXX+0.01
XXXX+0.001
ANG. +0.5

Nozzle Extensions #8 and #11 installed

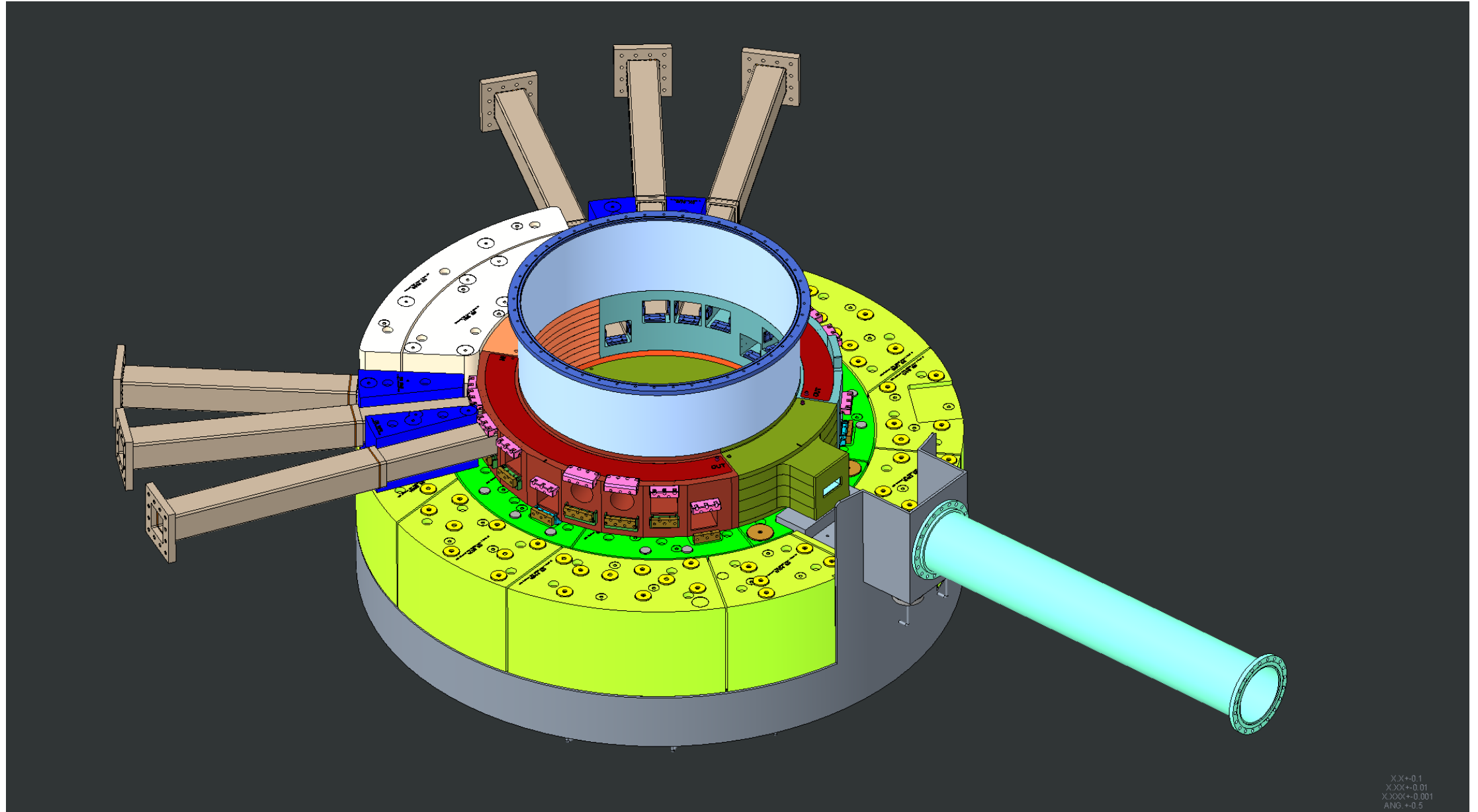


XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

Shielding around Nozzle Extensions #8 and #11 installed

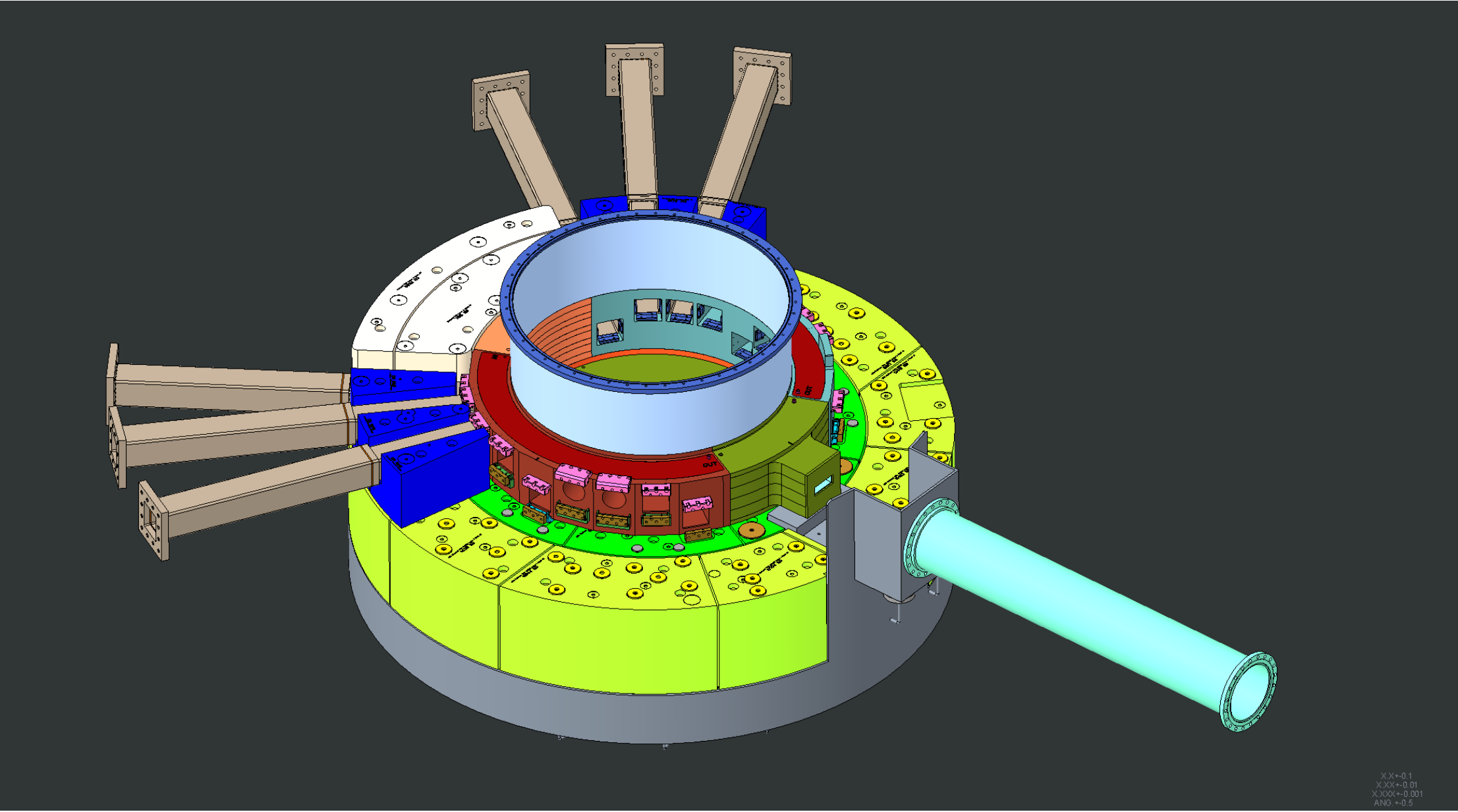


Nozzle Extensions #7 and #12 installed



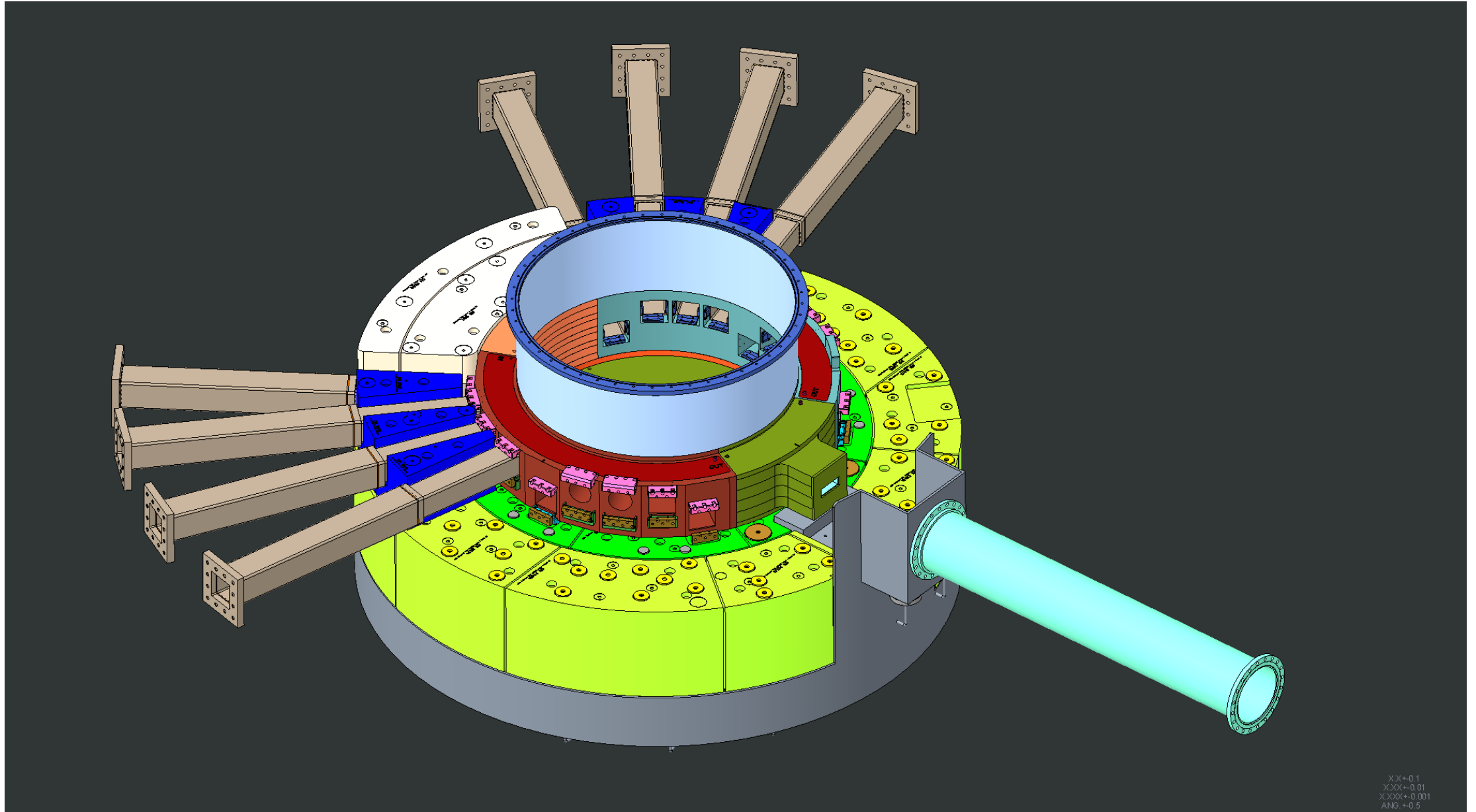
XX+0.1
X.XX+0.01
X.XXX+0.001
ANG. +0.5

Shielding around Nozzle Extensions #7 and #12 installed



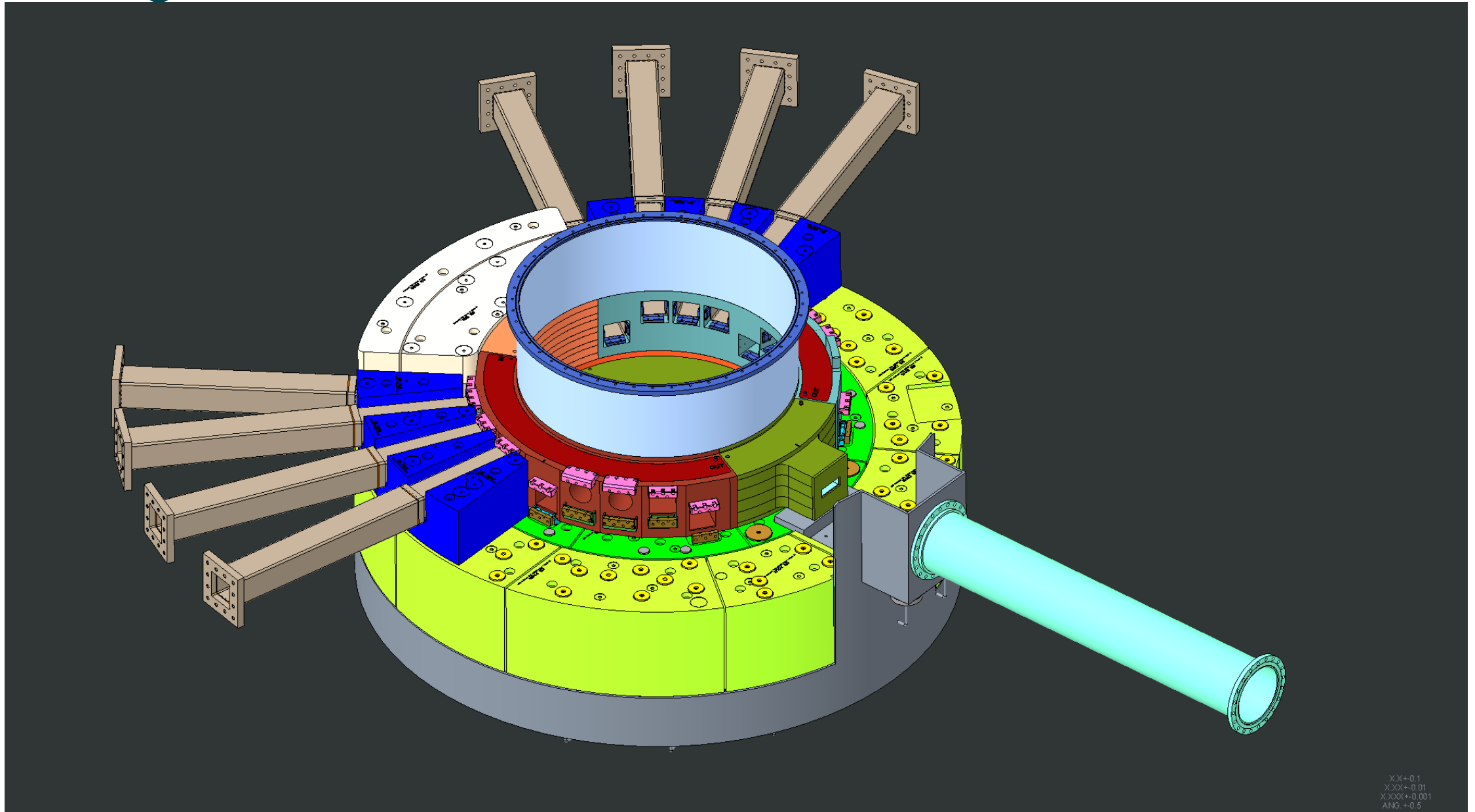
X.X+0.1
X.XX+0.01
X.XXX+0.001
ANG +0.5

Nozzle Extensions #6 and #13 installed



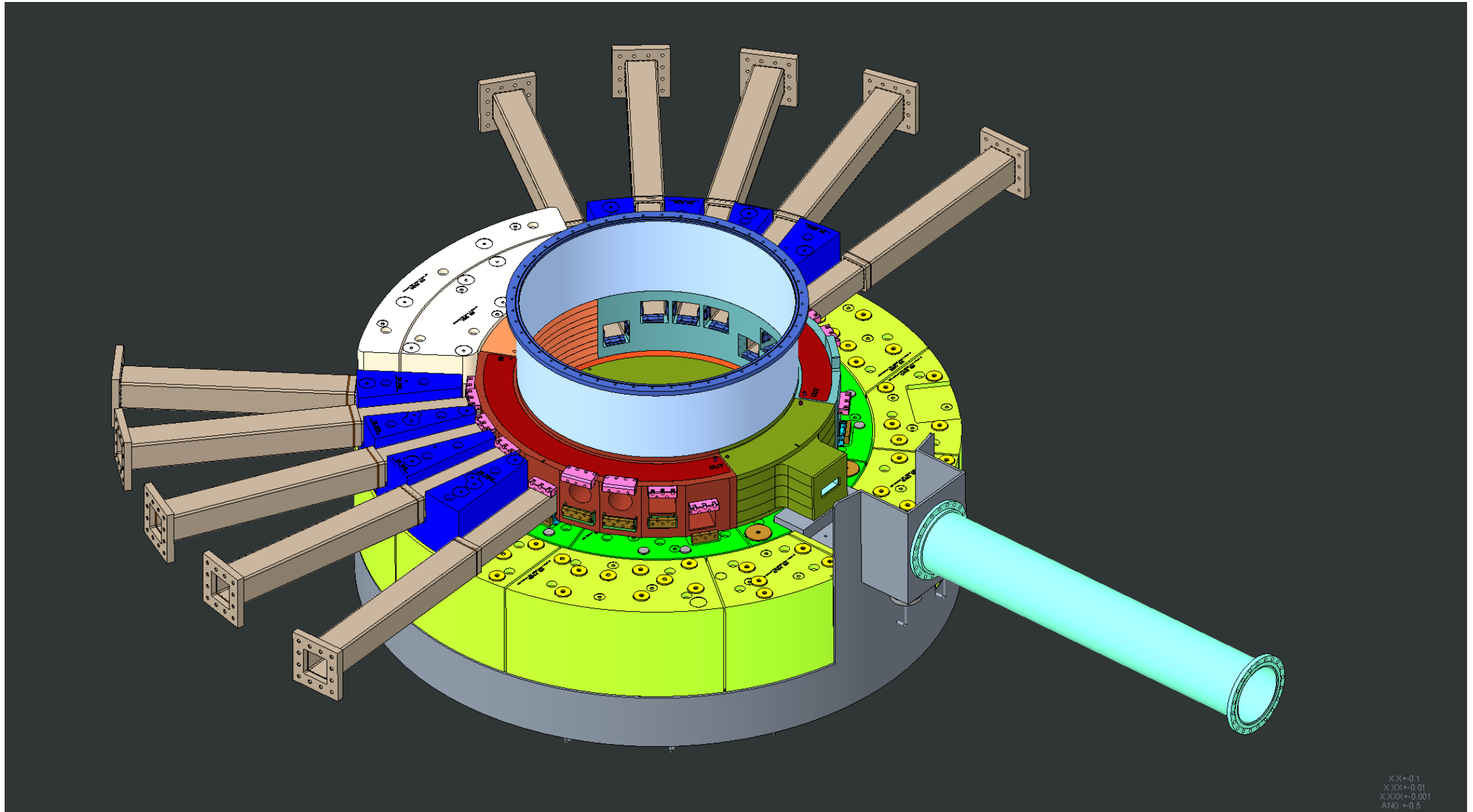
XX+0.1
XXX+0.01
X,XXX+0.001
ANG +0.5

Shielding around Nozzle Extensions #6 and #13 installed



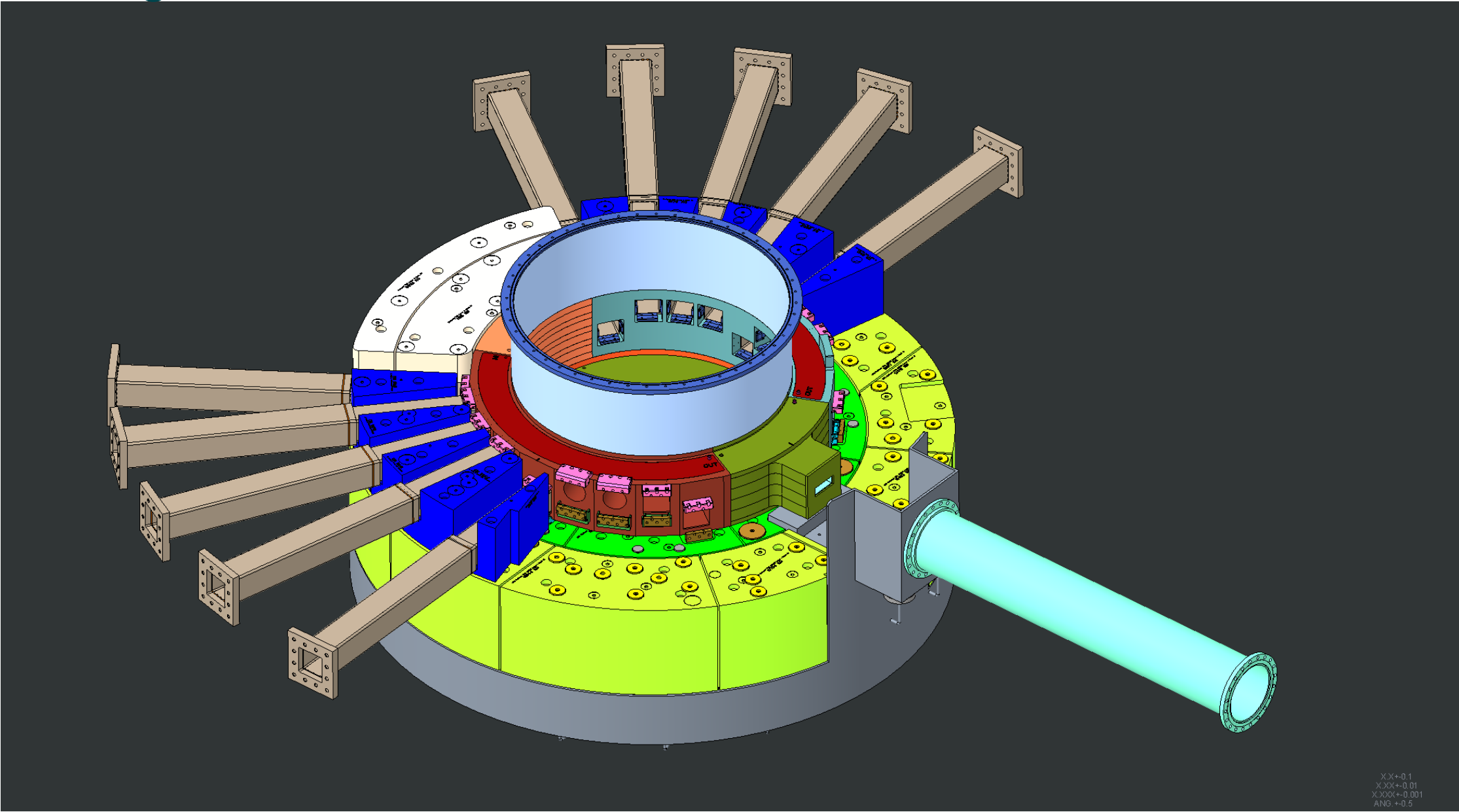
XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

Nozzle Extensions #5 and #14 installed



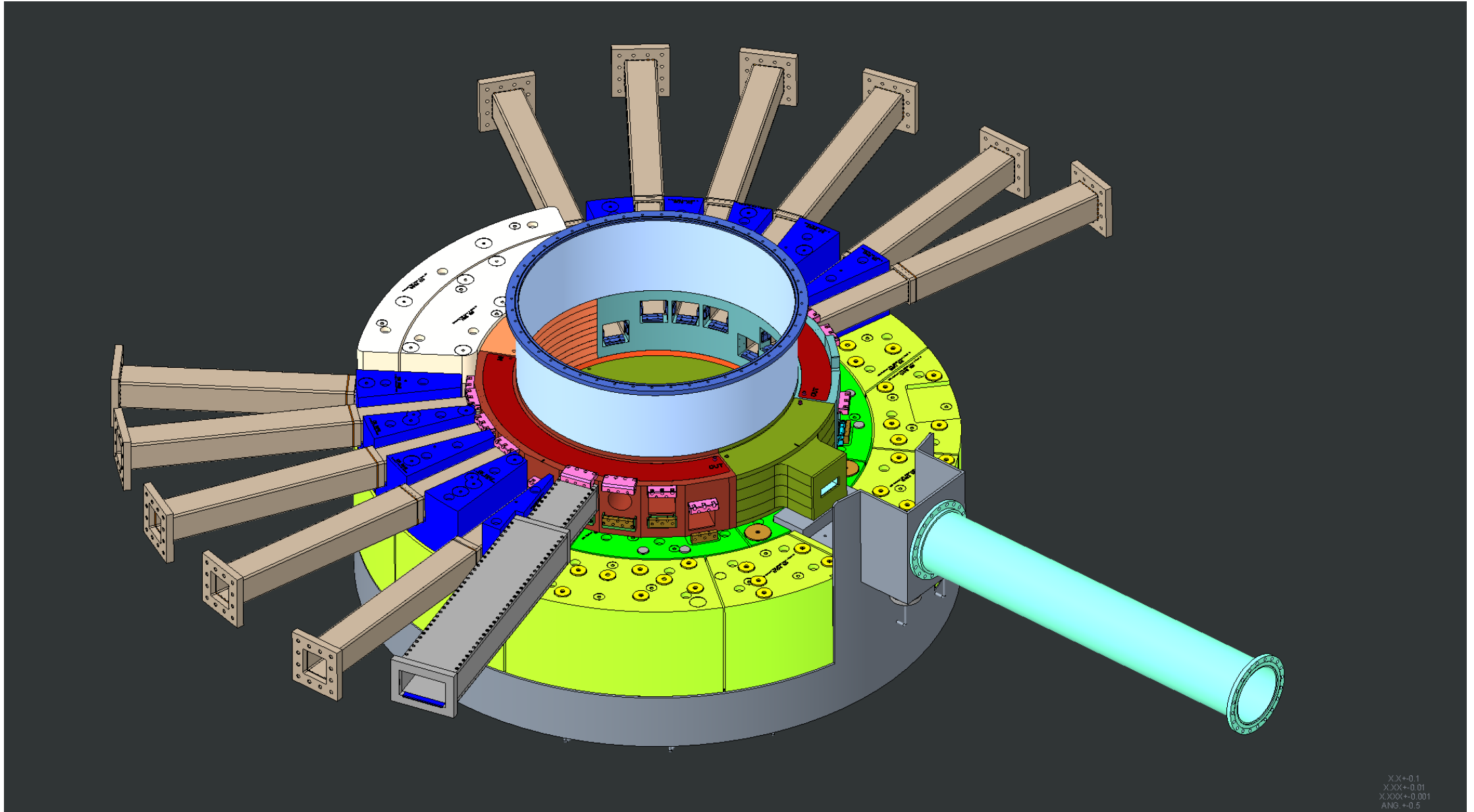
XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

Shielding around Nozzle Extensions #5 and #14 installed



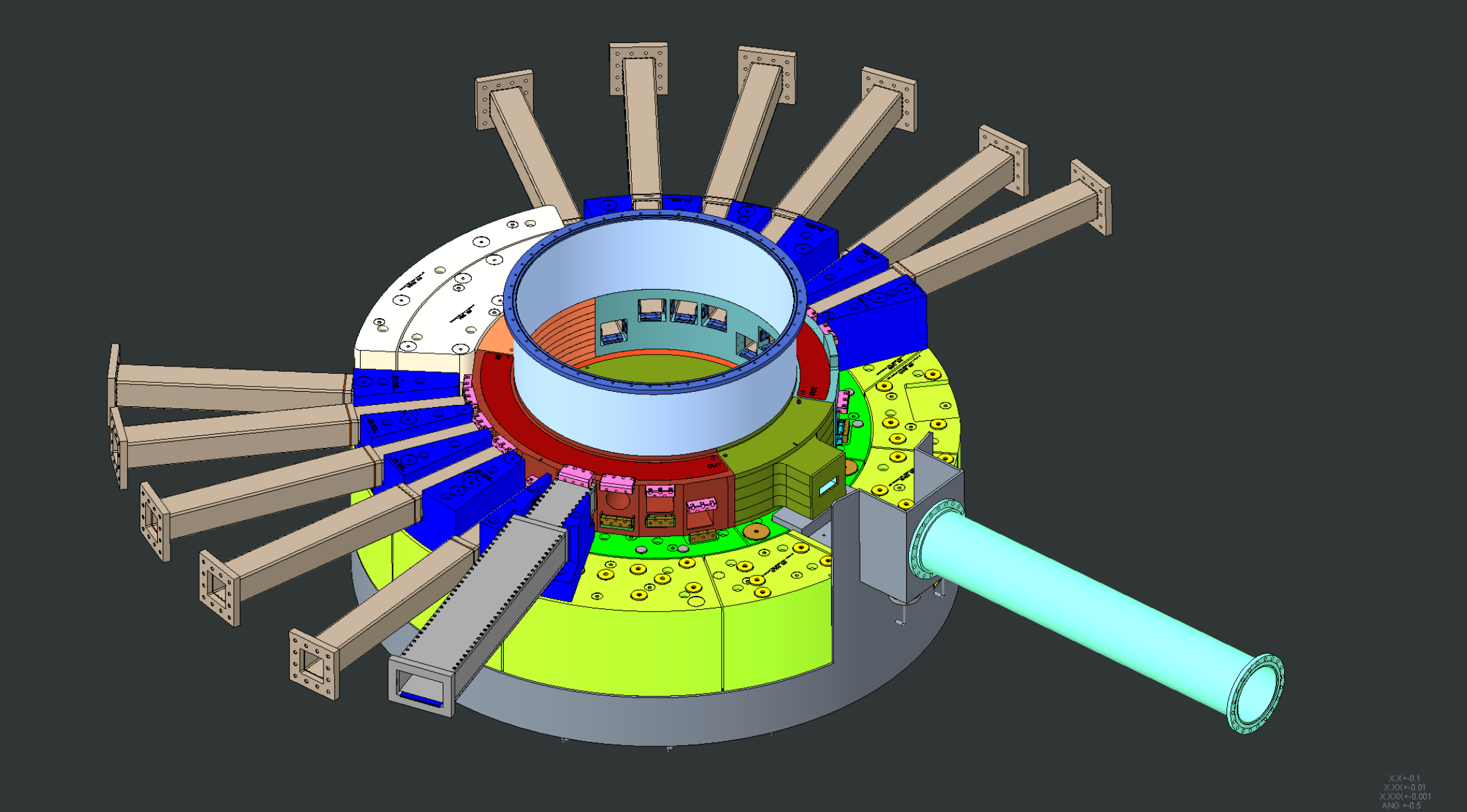
XX+0.1
XXX+0.01
XXXX+0.001
ANG: +0.5

Nozzle Extensions #4 and #15 installed



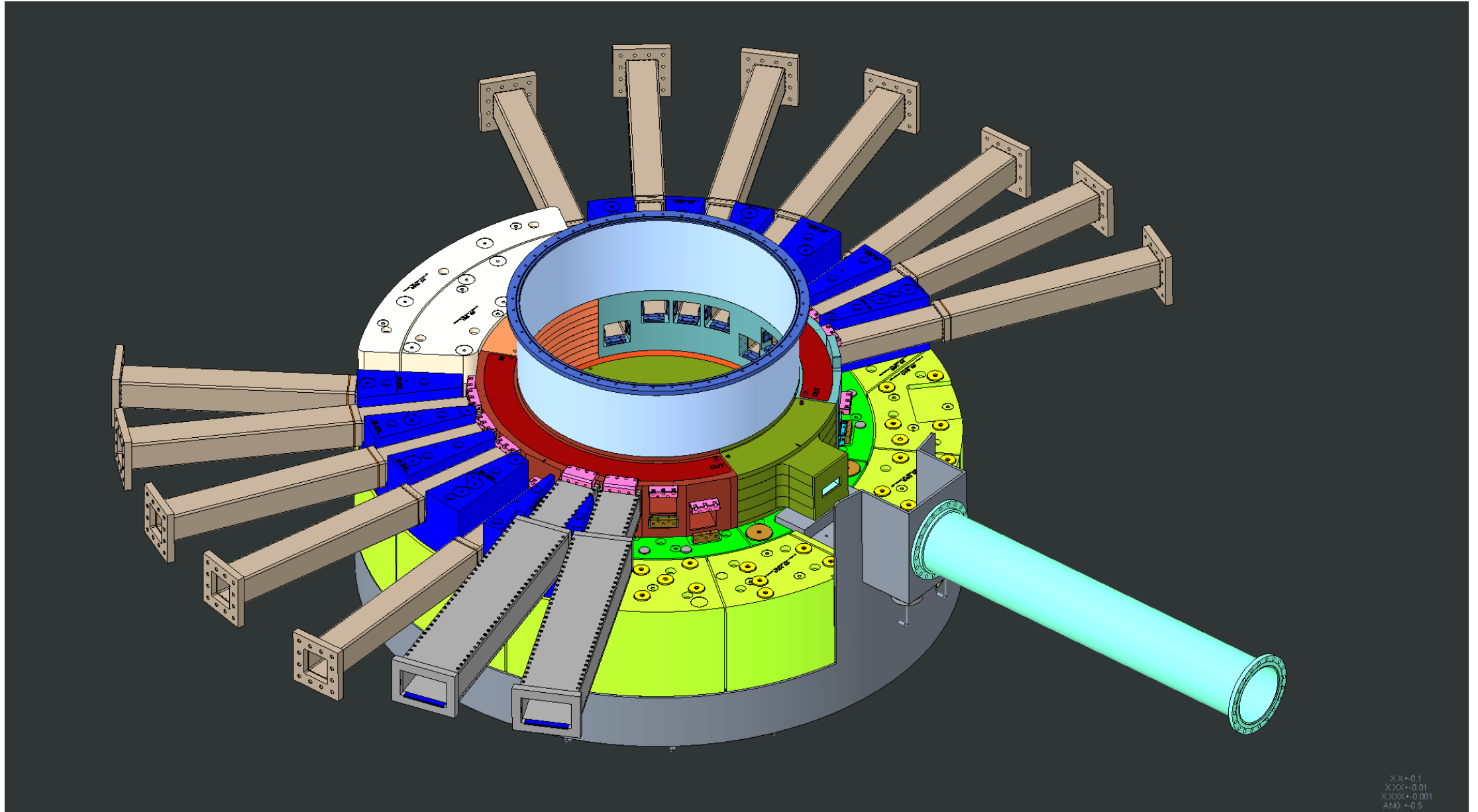
XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

Shielding around Nozzle Extensions #4 and #15 installed



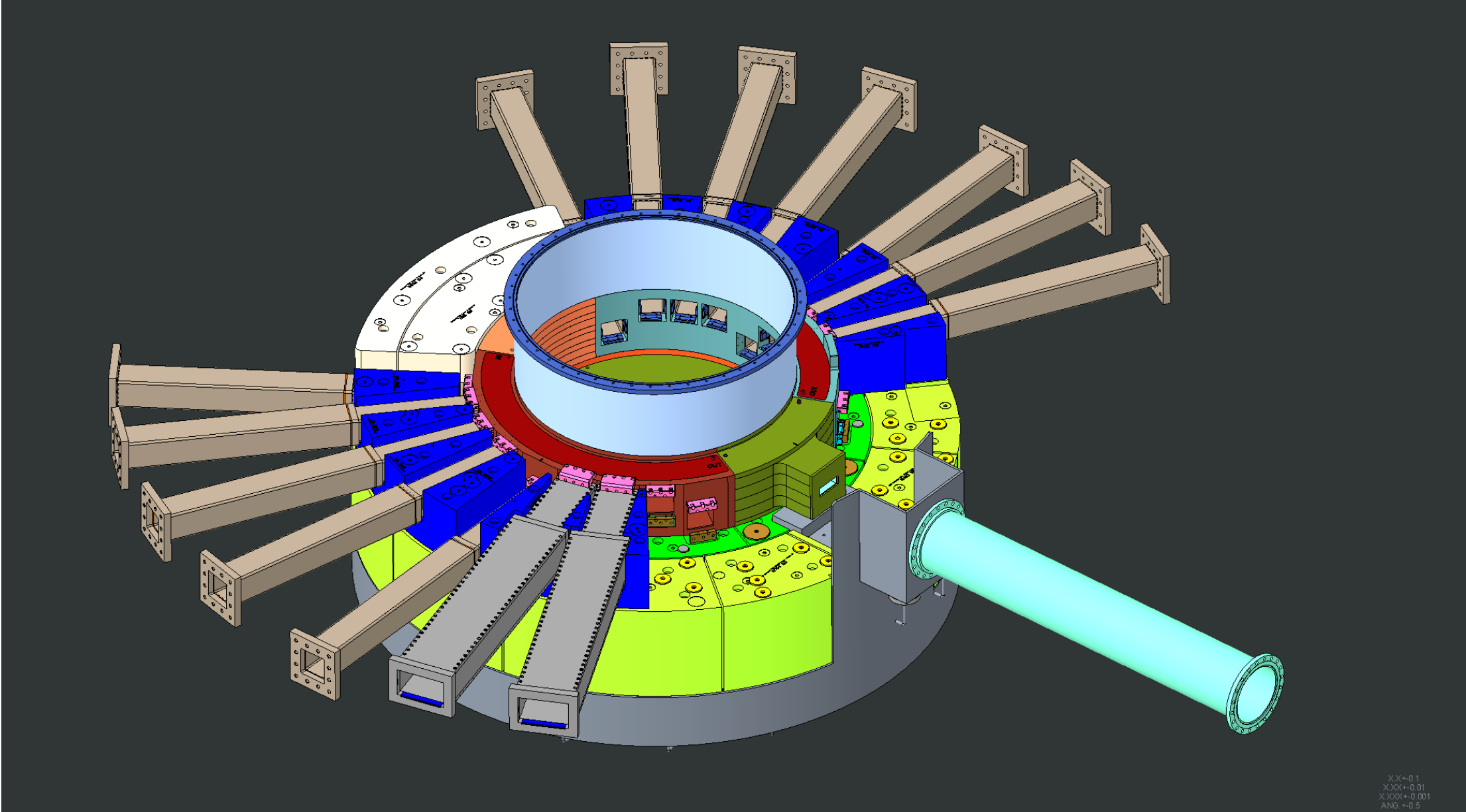
XX+0.1
X.XX+0.01
X.XXX+0.001
ANG +0.5

Nozzle Extensions #3 and #16 installed



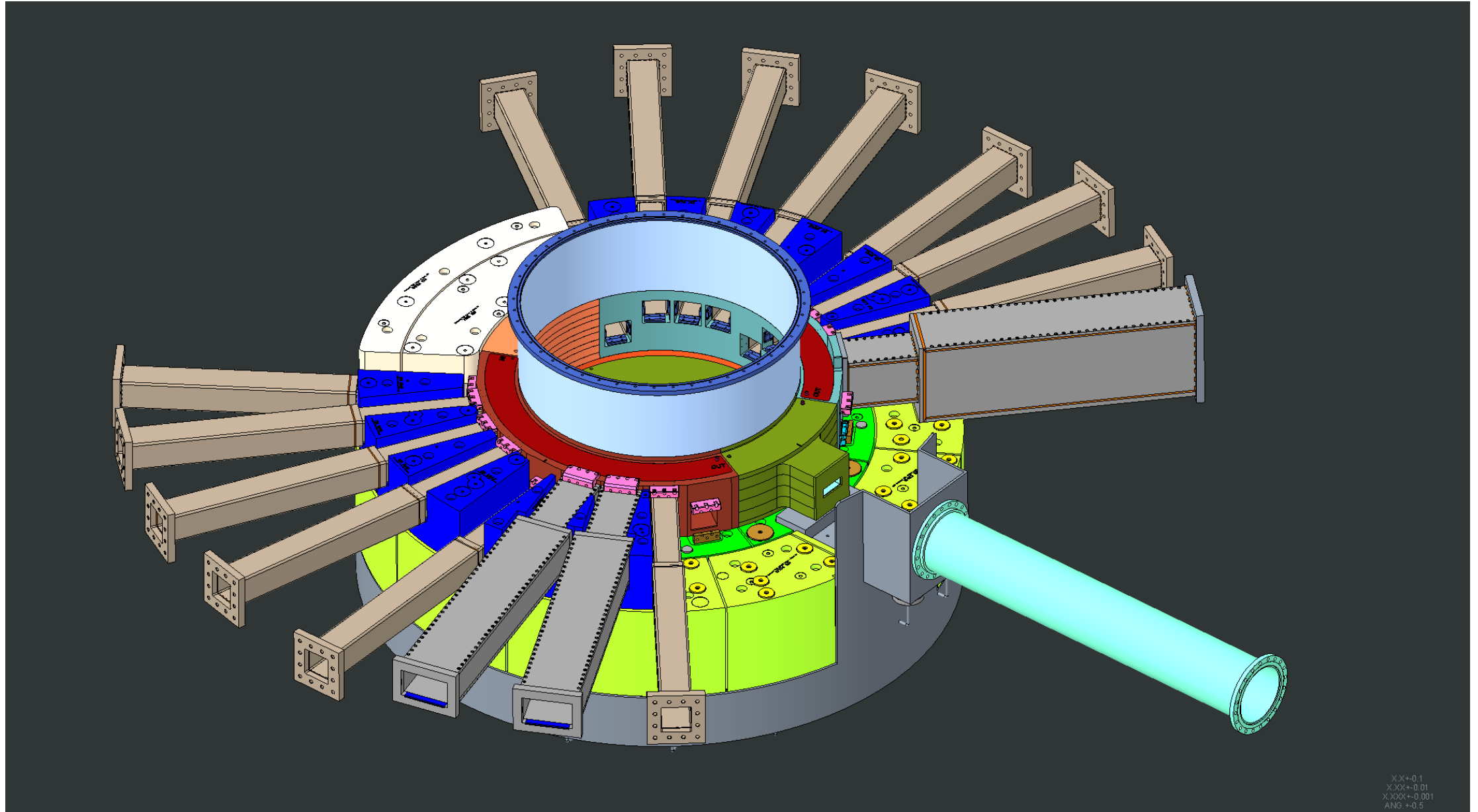
XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

Shielding around Nozzle Extensions #3 and #16 installed



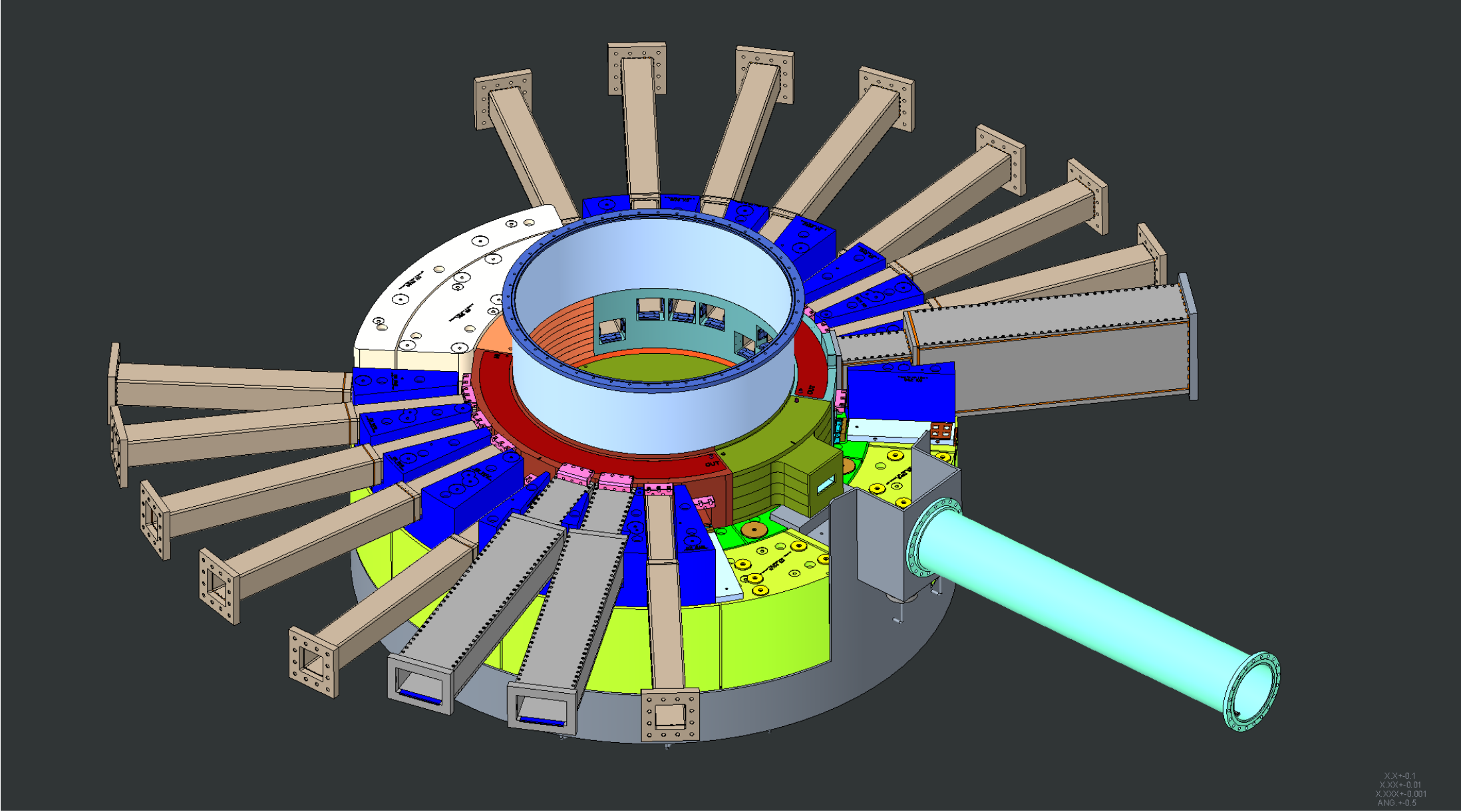
XX+0.1
XXX+0.01
X,XXX+0.001
ANG +0.5

Nozzle Extensions #2 and #17 installed



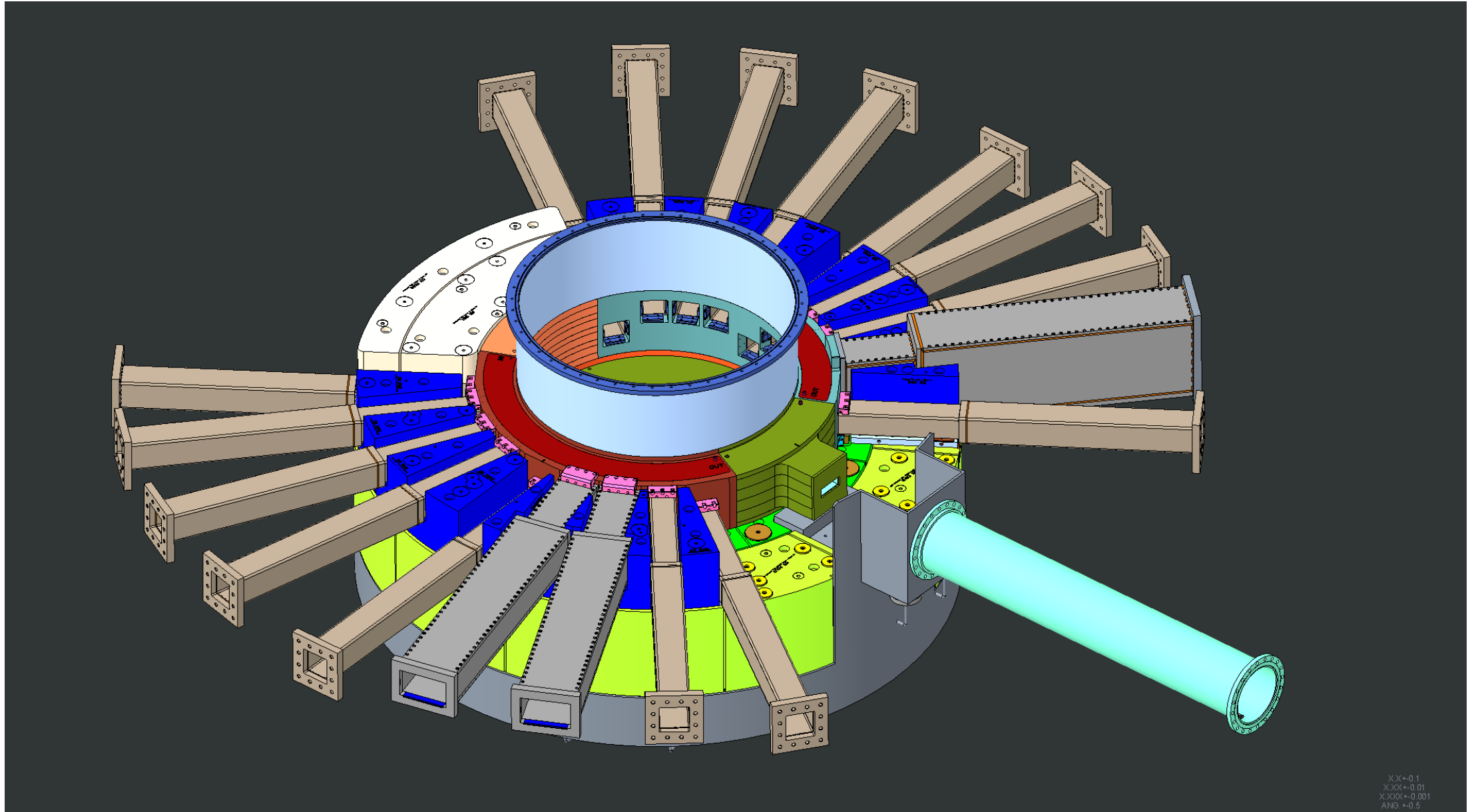
XX+0.1
X.XX+0.01
X.XXX+0.001
ANG +0.5

Shielding around Nozzle Extensions #2 and #17 installed

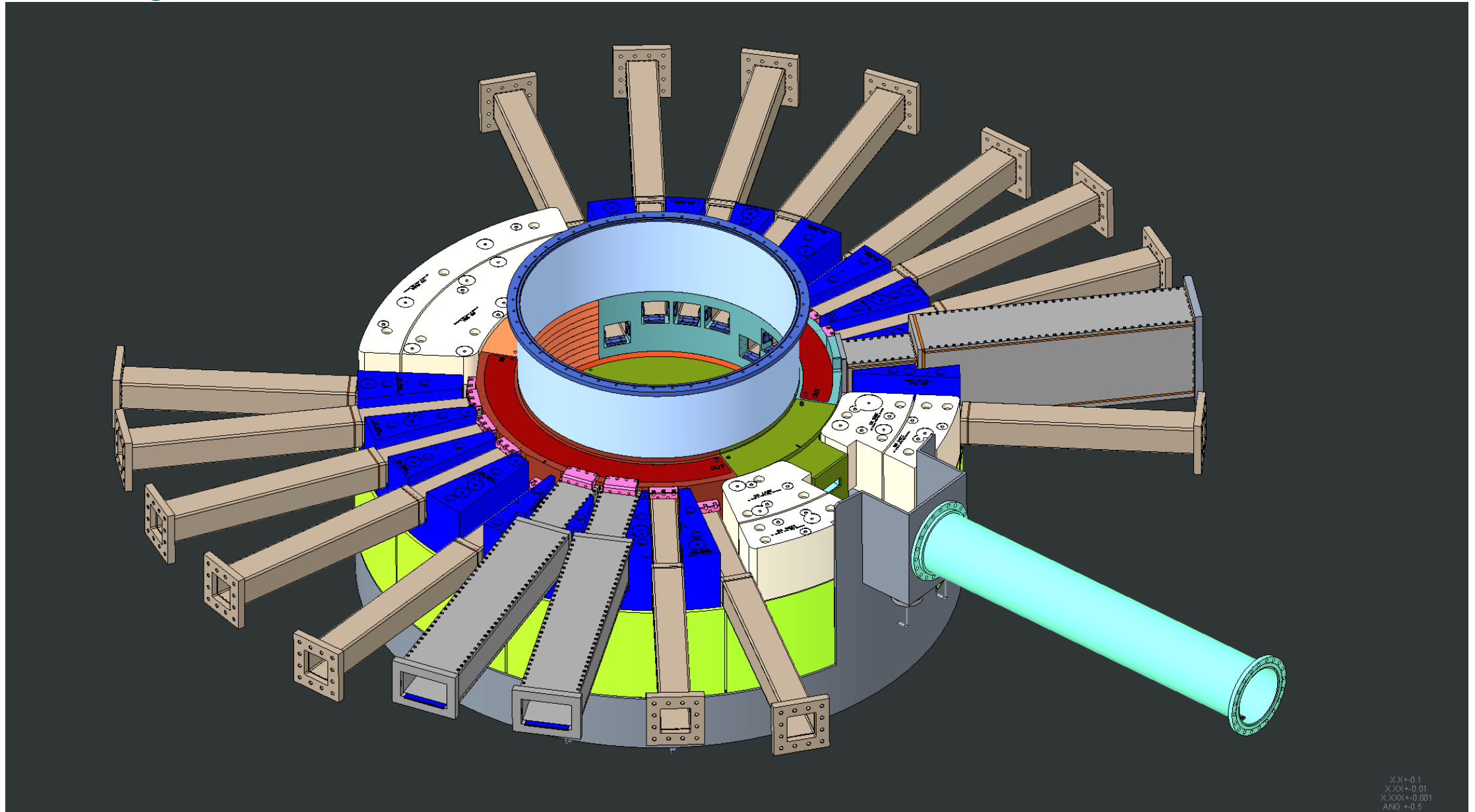


X.X+/-0.1
X.XX+/-0.01
X.XXX+/-0.001
ANG +/-0.5

Nozzle Extensions #1 and #18 installed

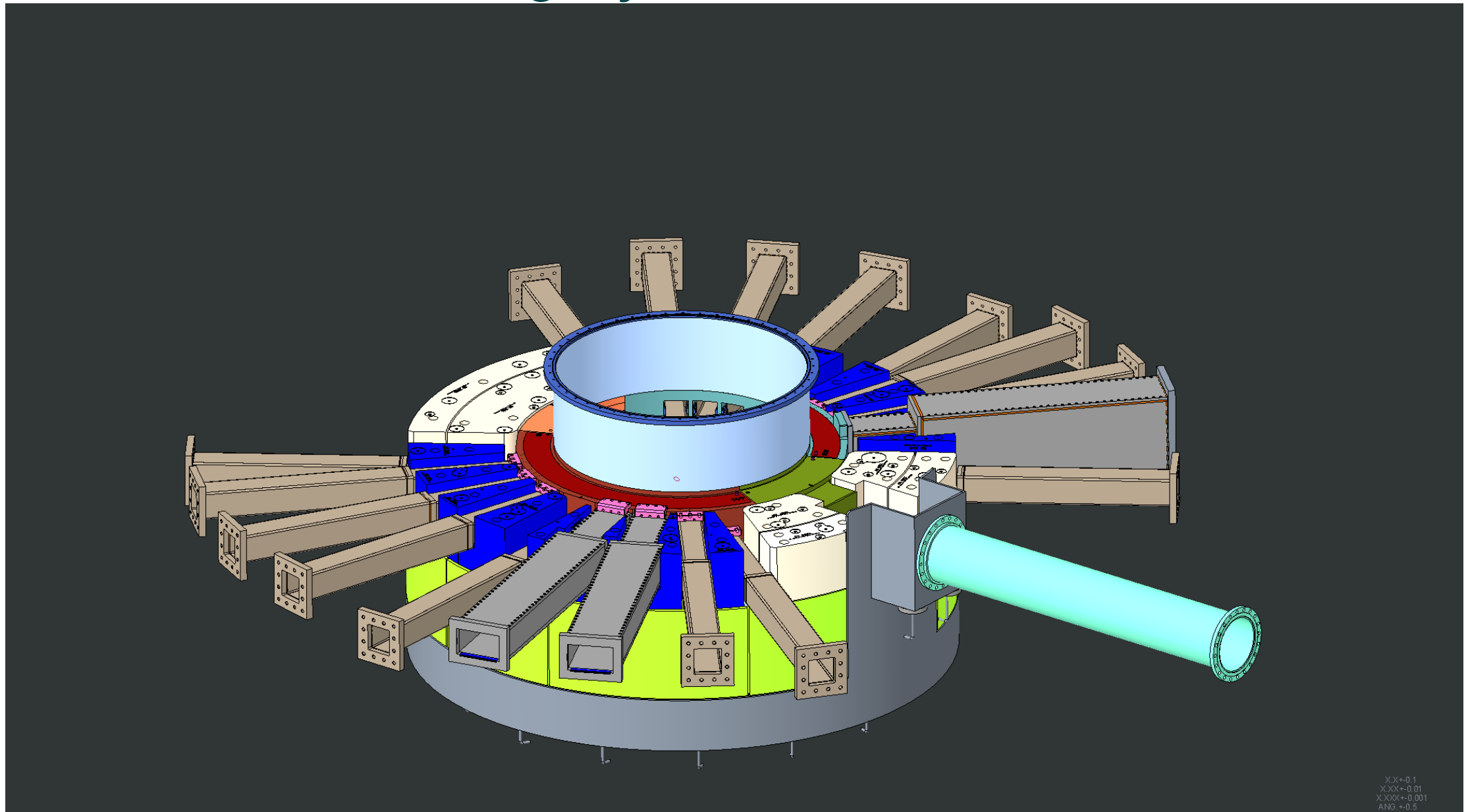


Shielding around Nozzle Extensions #1 and #18 installed



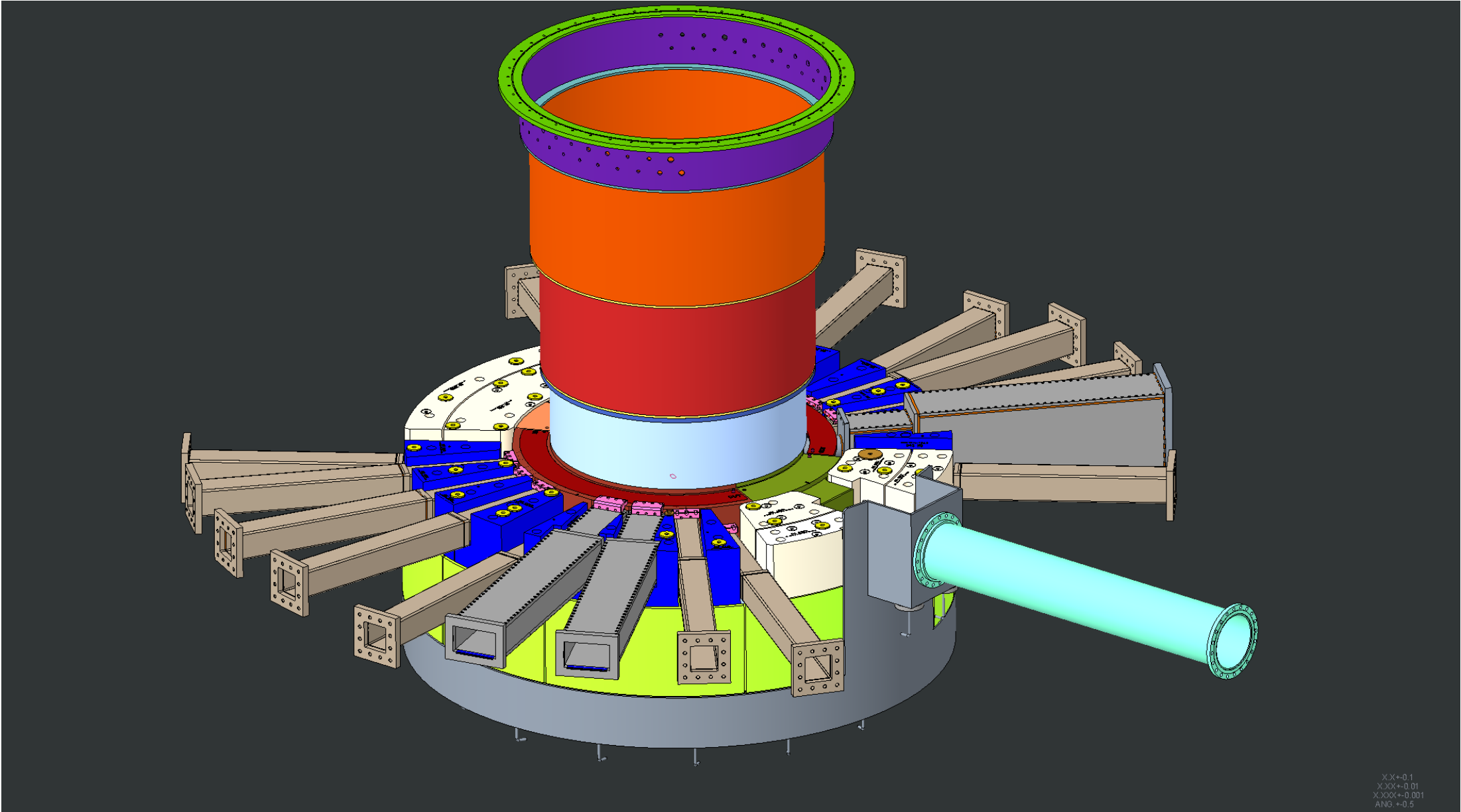
XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

Upstream Bulk Shielding layer #2 installed



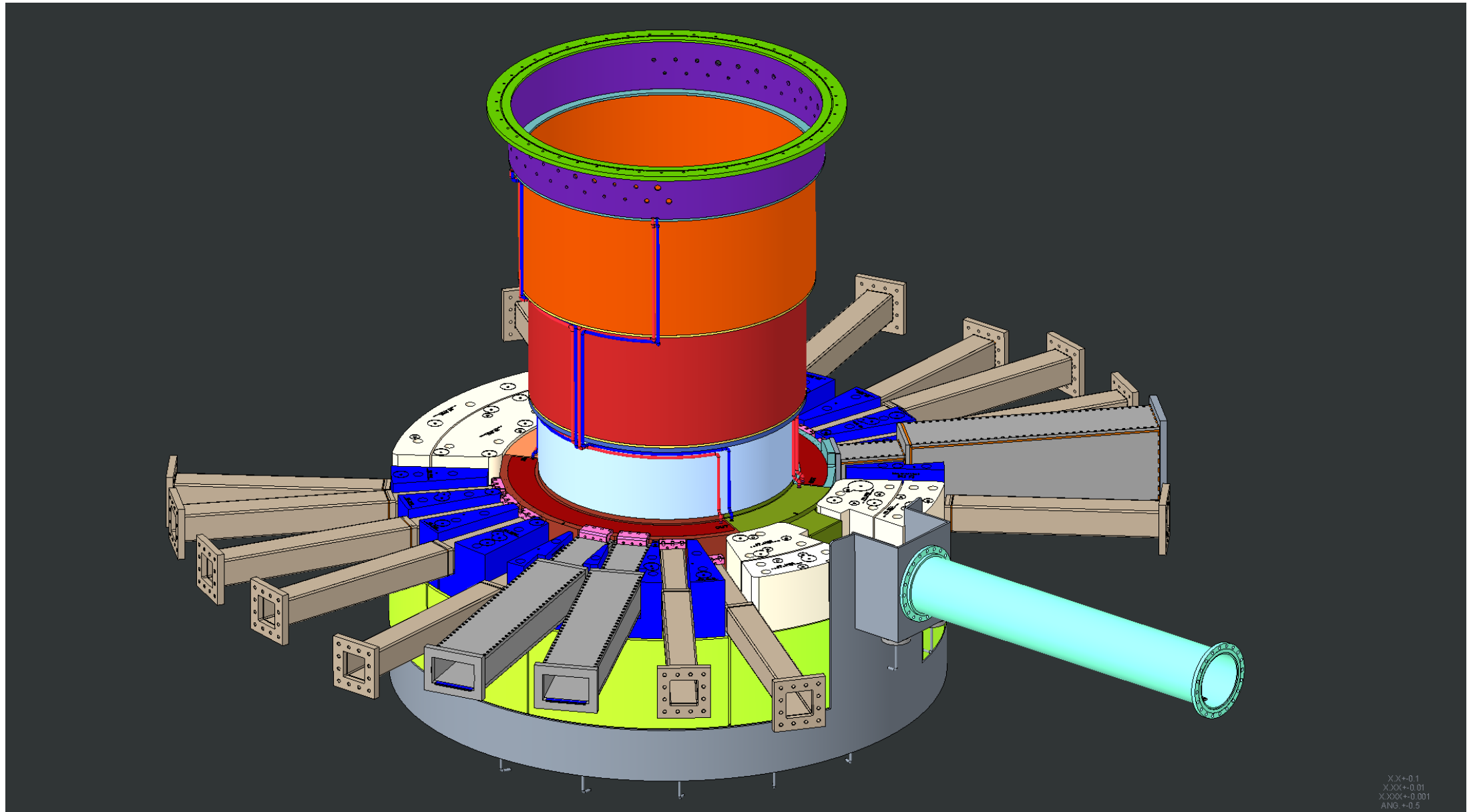
XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

Layer 3 shim pucks installed



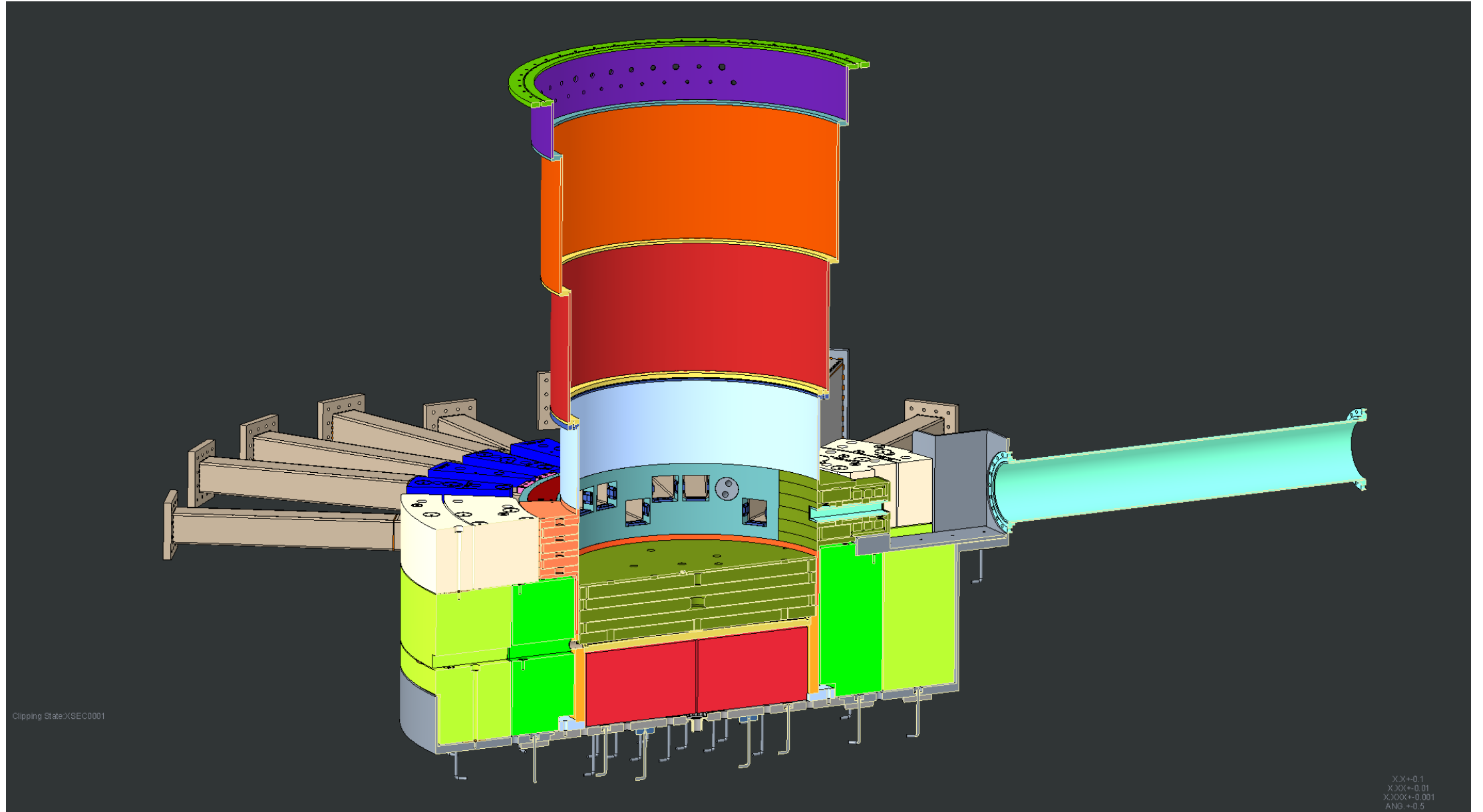
XX+-0.1
XXX+-0.01
XXXX+-0.001
ANG +/-0.5

Core Vessel beltline water lines welded in place

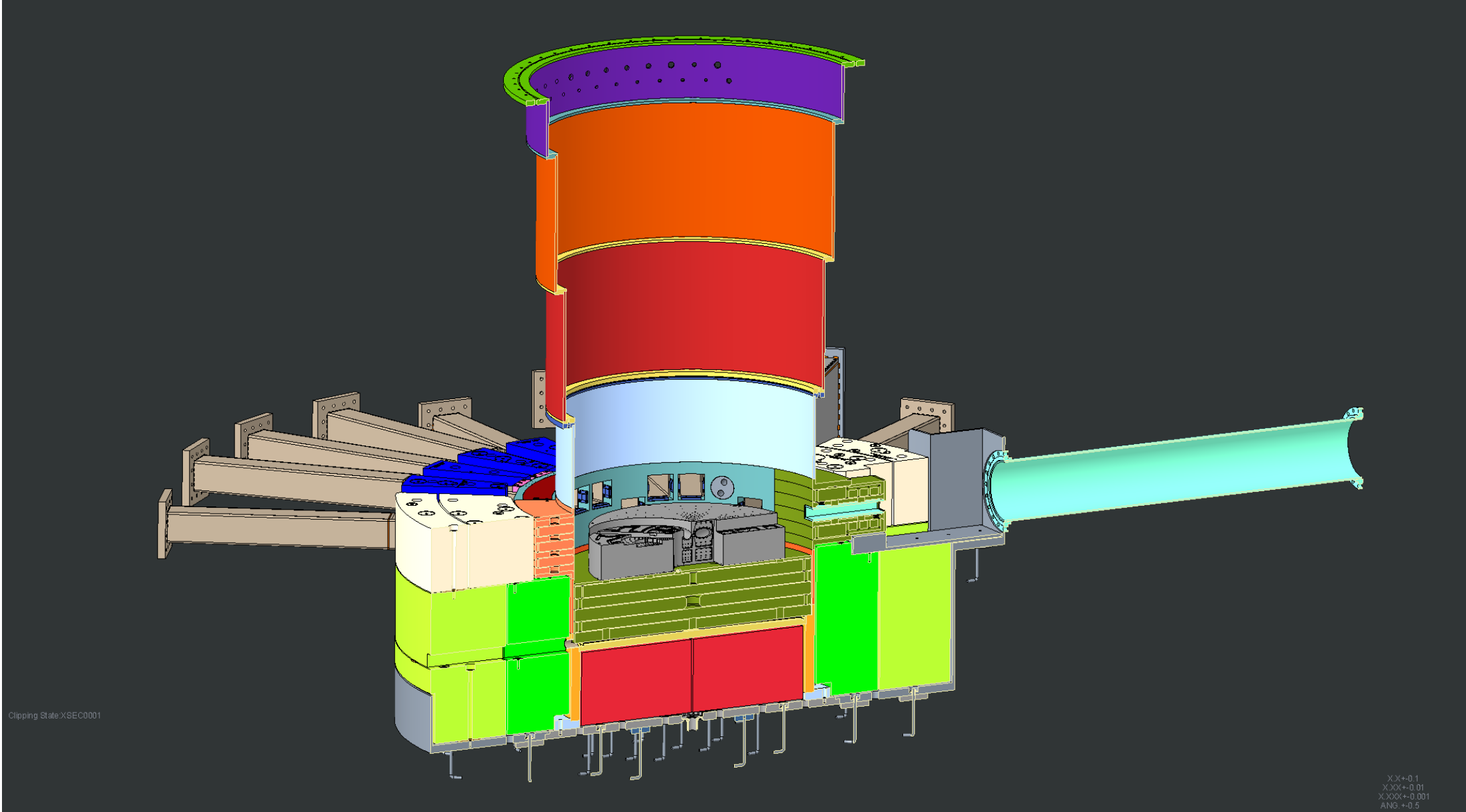


XX+0.1
XXX+0.01
XXXX+0.001
ANG: +0.5

Cross section view of installation up to this point



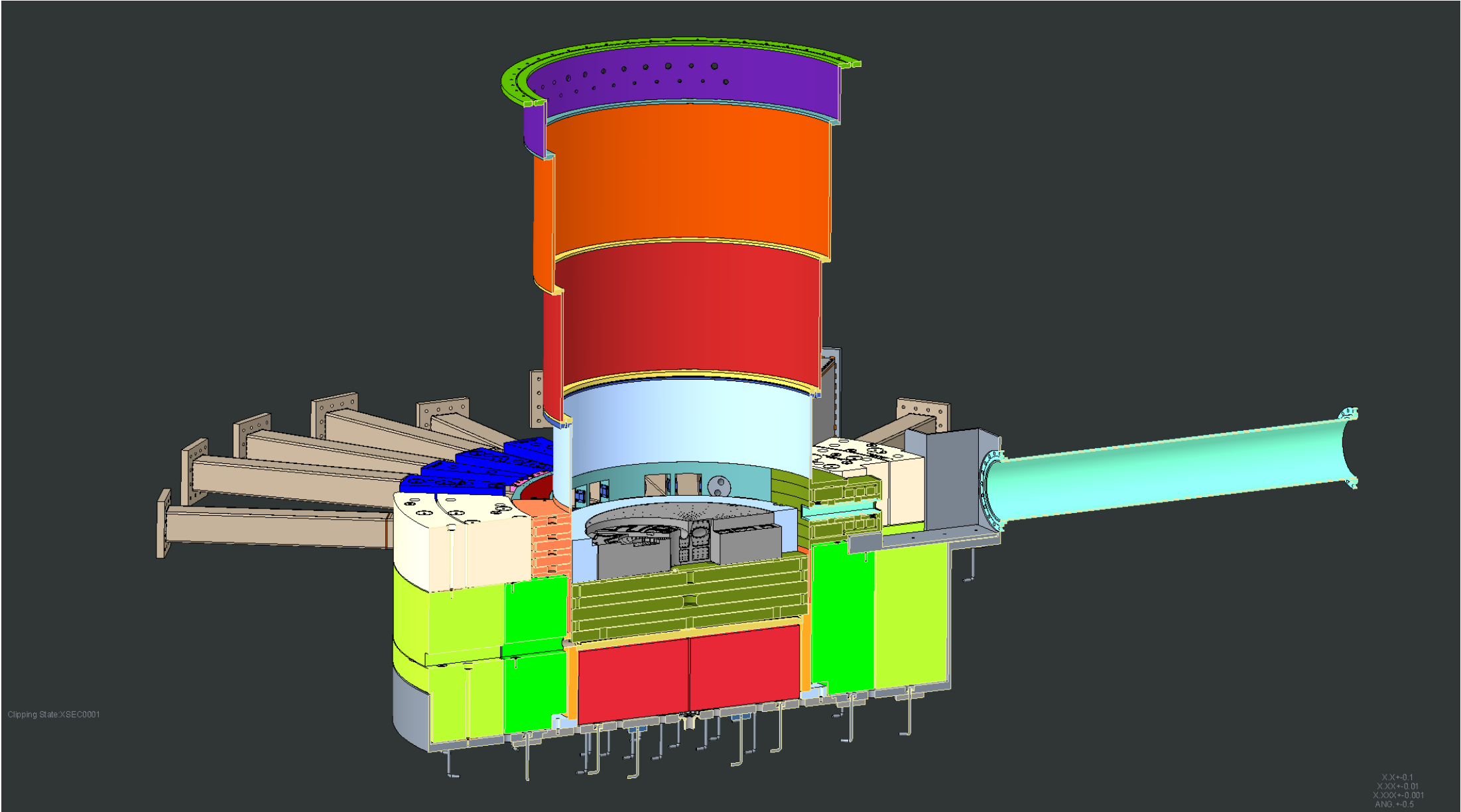
Core Vessel cooled layer #2 shield blocks installed



Clipping State: XSEC0001

XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

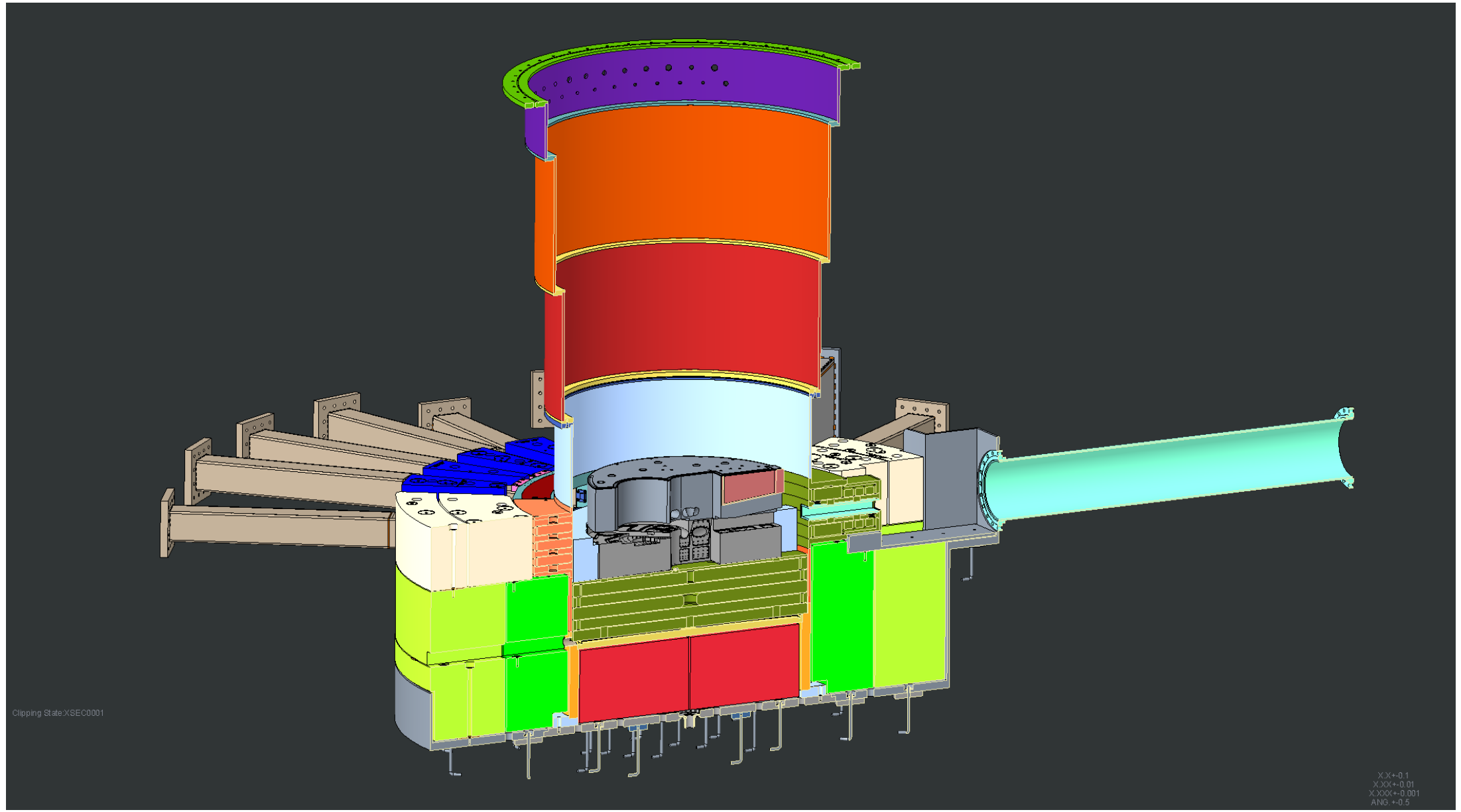
Core Vessel uncooled layer #2 shield blocks installed



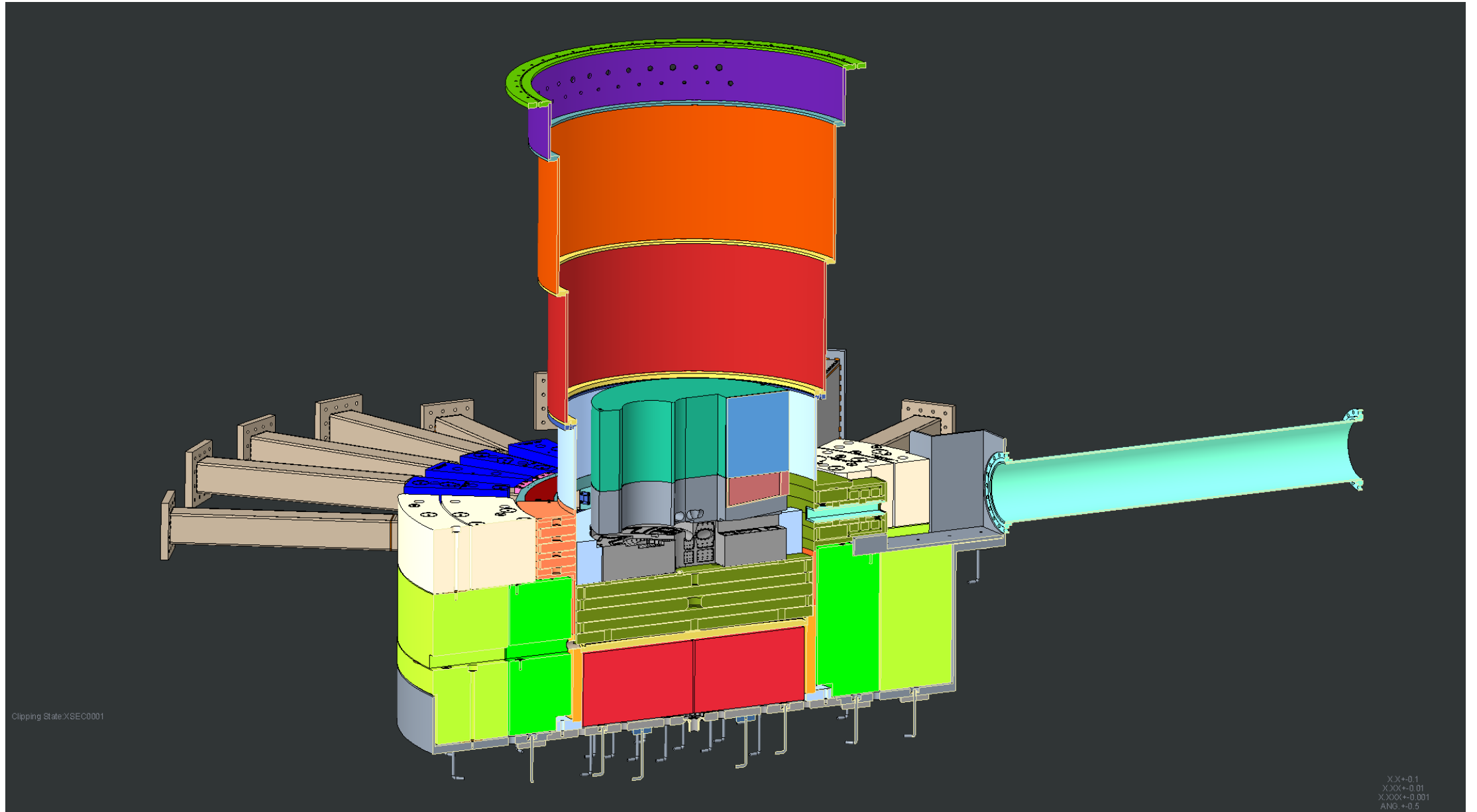
Clipping State XSEC0001

XX+-0.1
XXX+-0.01
XXXX+-0.001
ANG +/-0.5

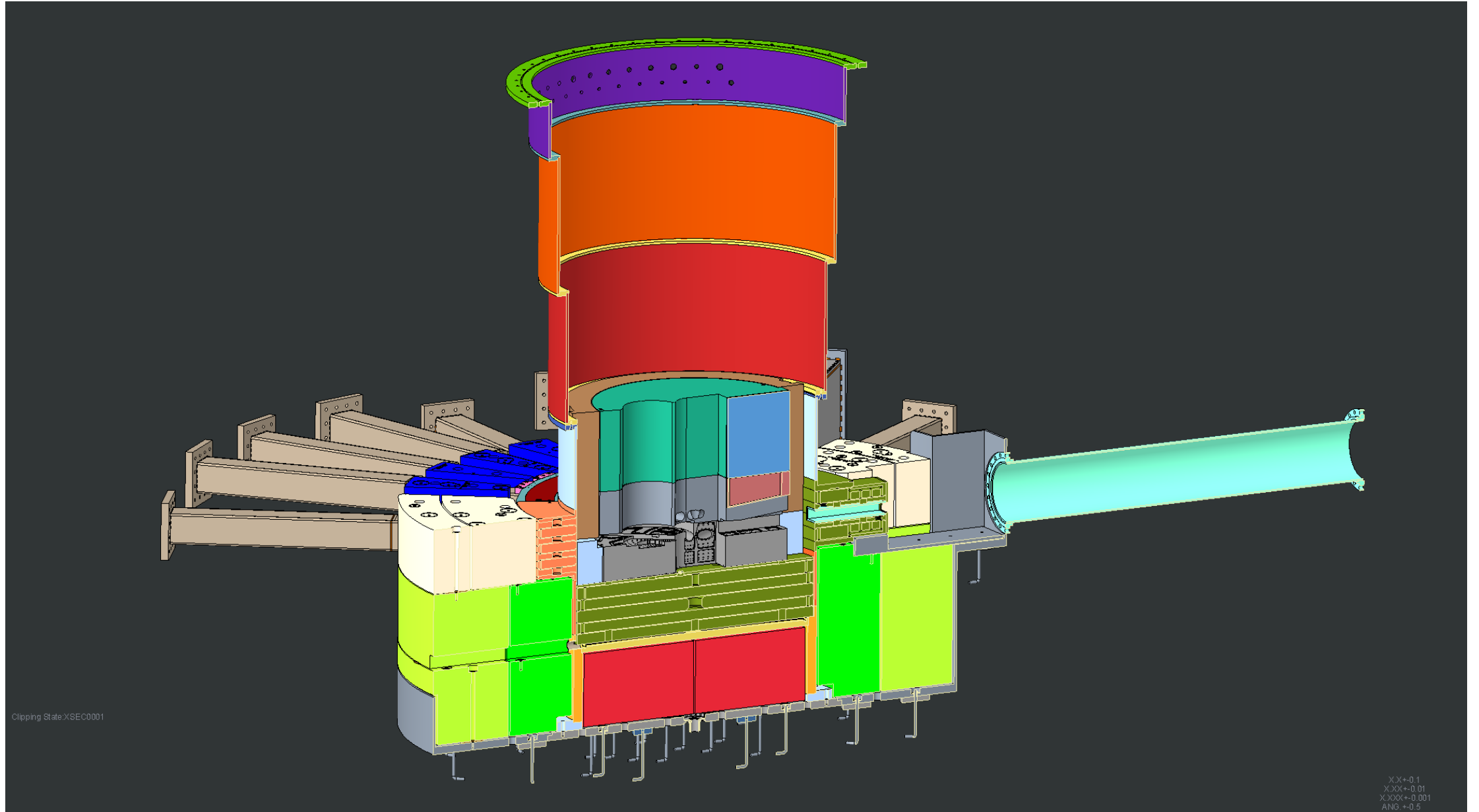
Core Vessel cooled layer #3 cooled shield blocks installed



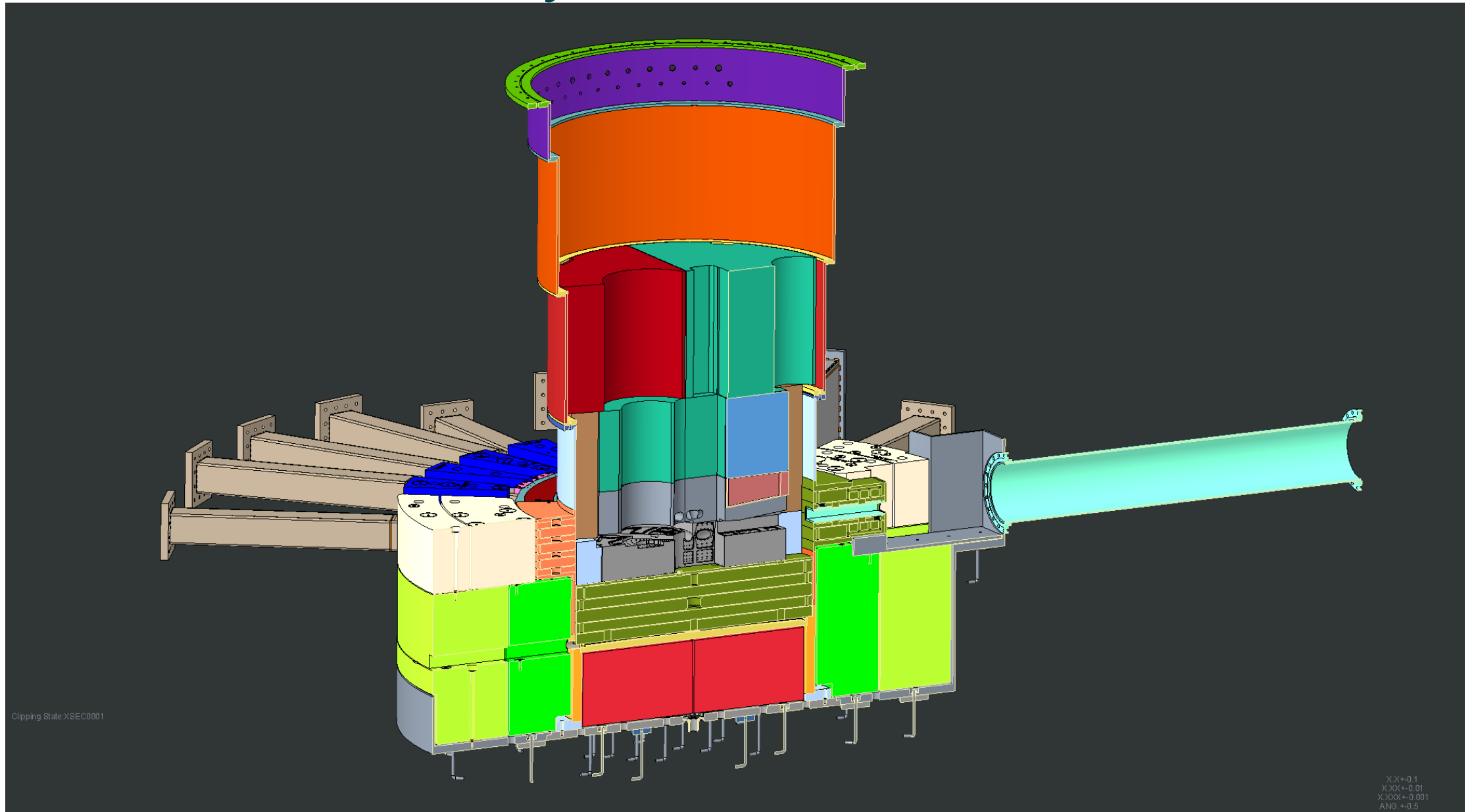
Core vessel uncooled layer #3 inner shield blocks installed



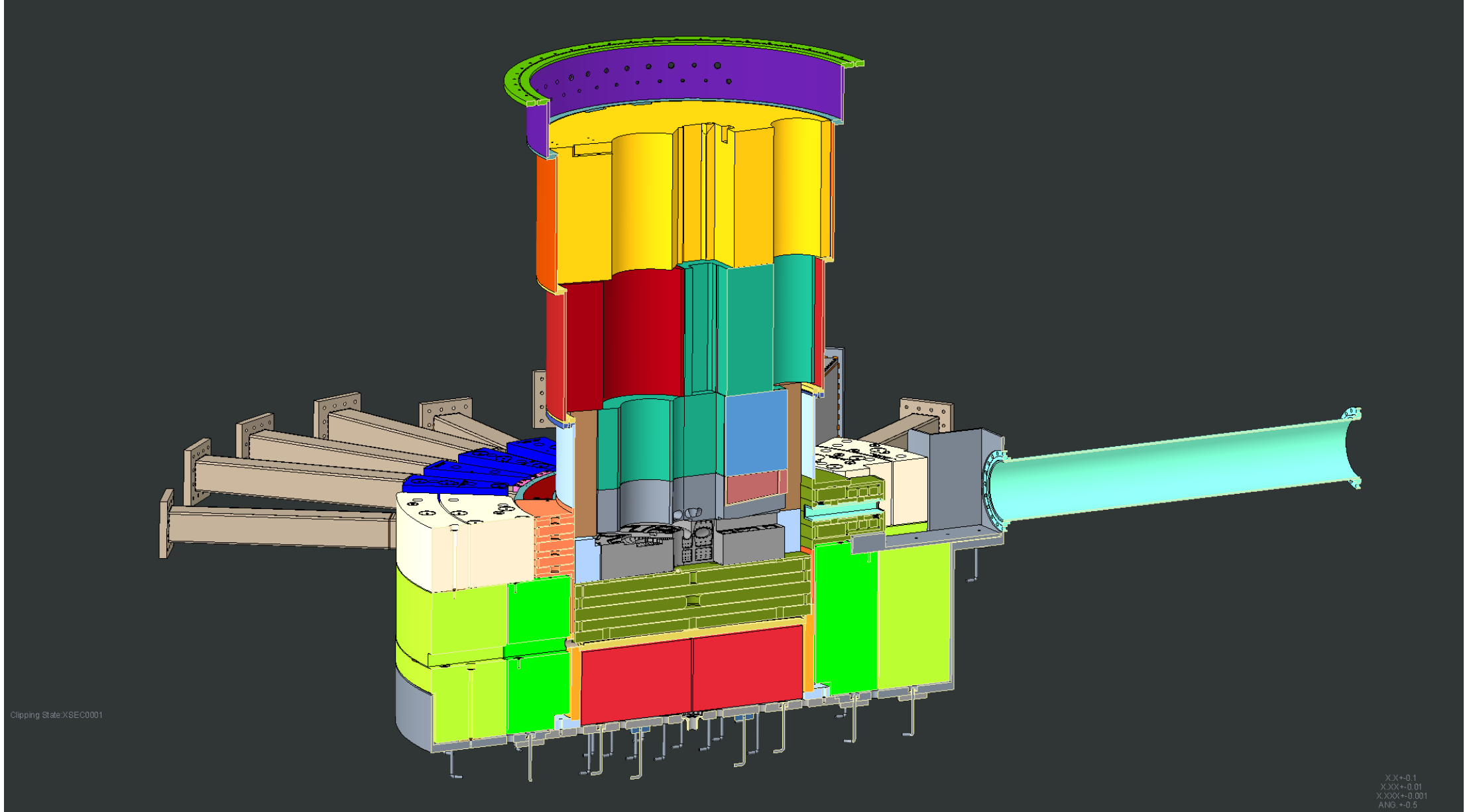
Core vessel uncooled layer #3 outer shield blocks installed



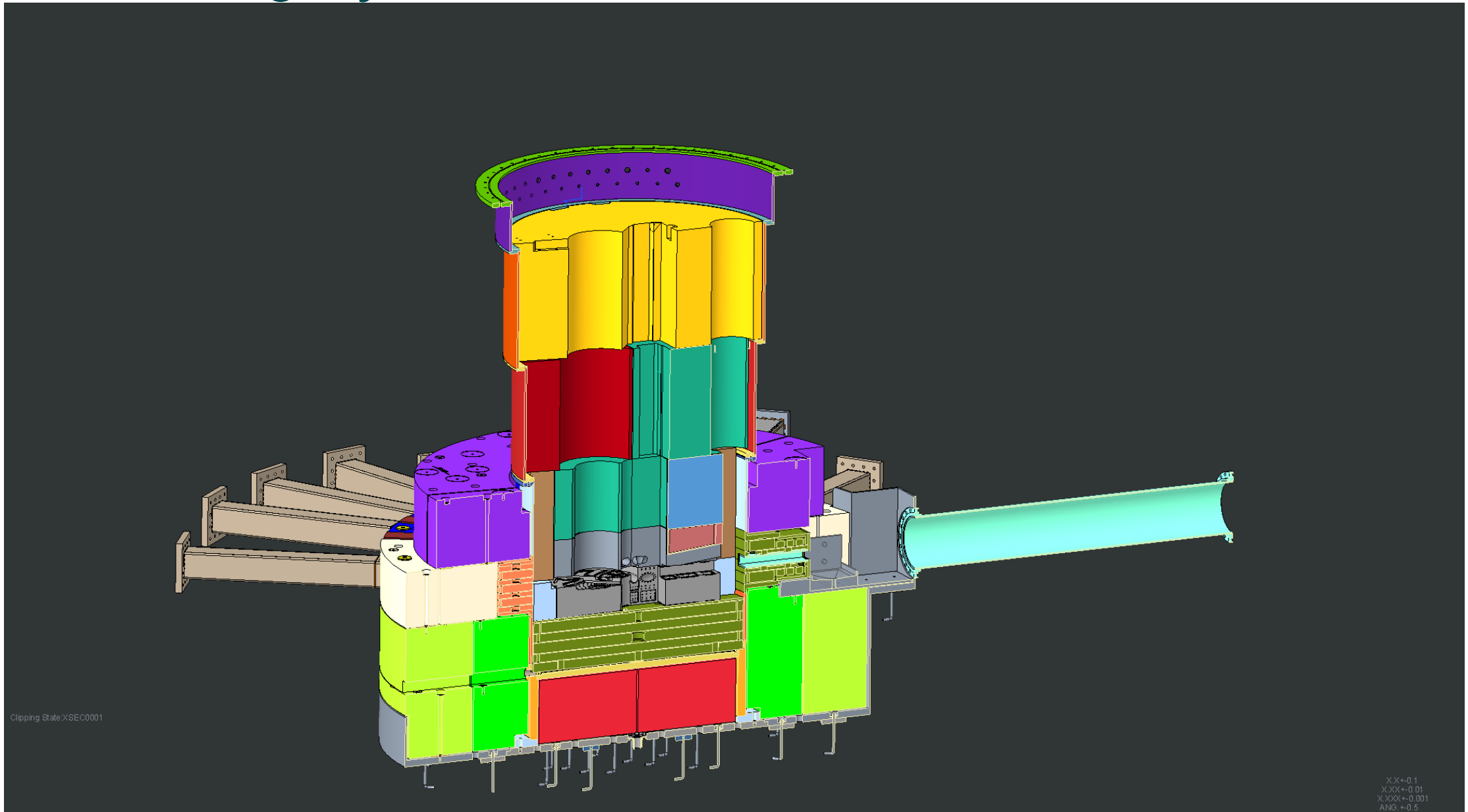
Core vessel uncooled layer #4 shield blocks installed



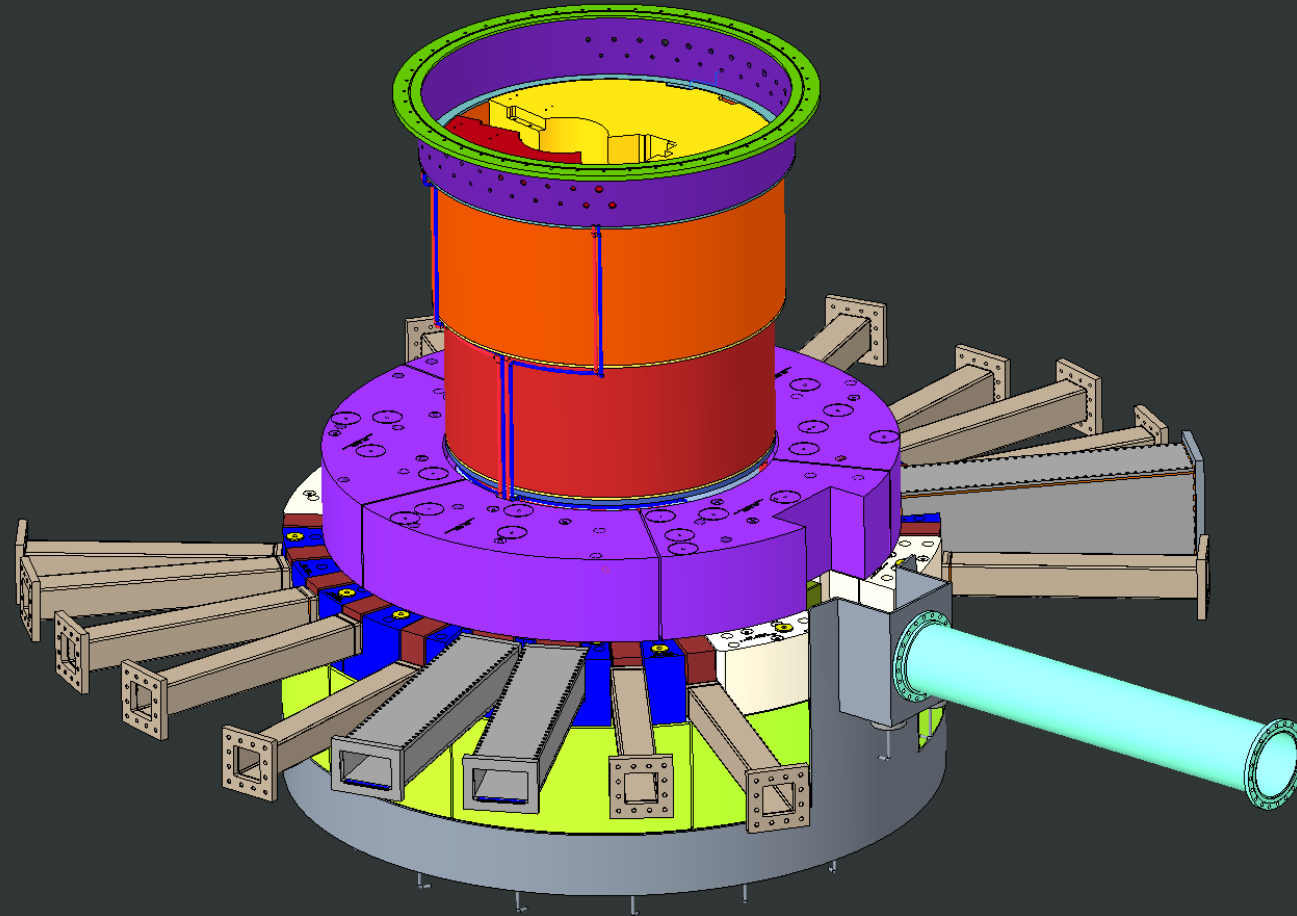
Core vessel uncooled layer #5 shield blocks installed



Bulk Shielding layer #3 inside course installed

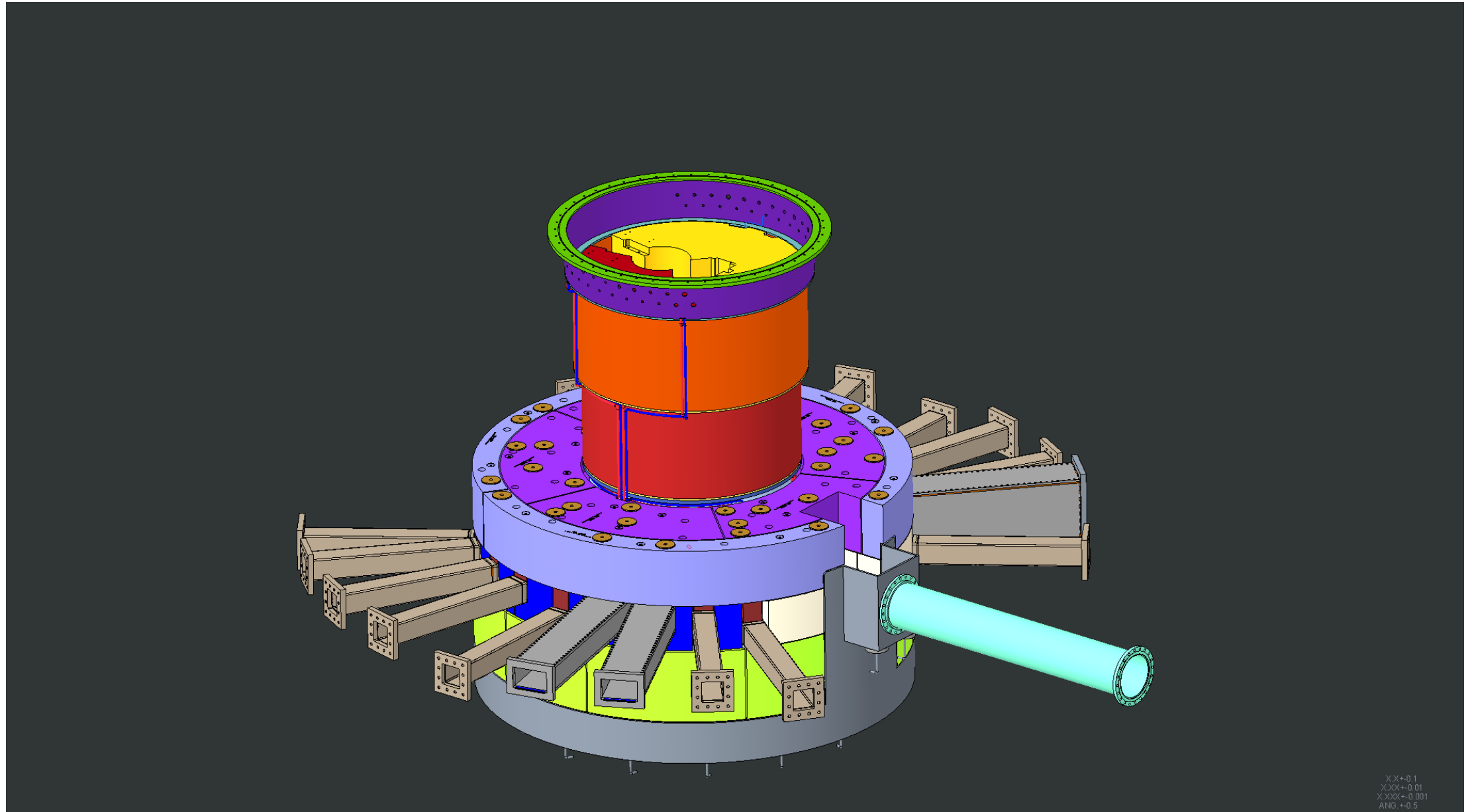


Bulk Shielding layer #3 inside course installed

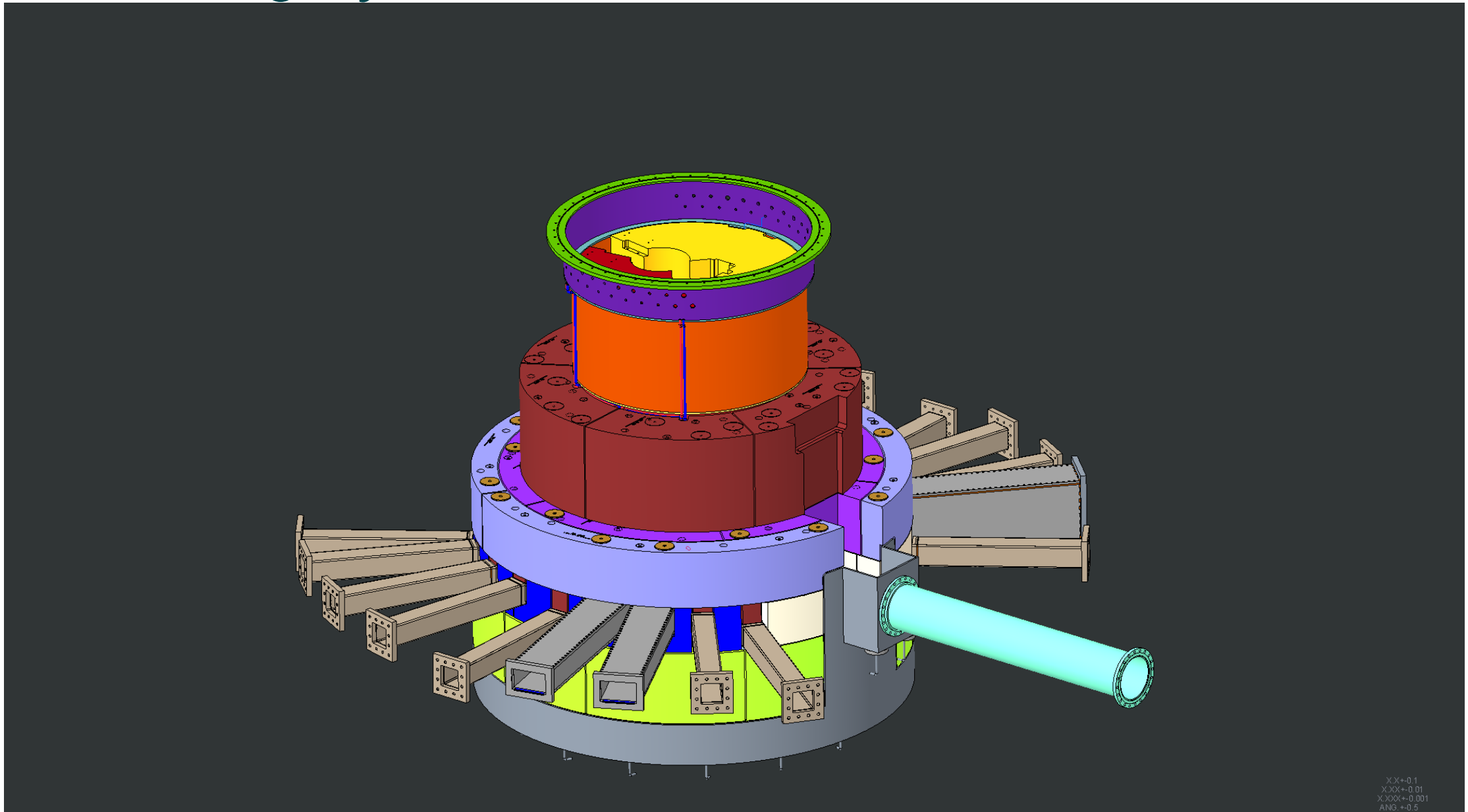


X.X+-0.1
X.XX+-0.01
X.XXX+-0.001
ANG +0.5

Bulk Shielding layer #3 outside course installed

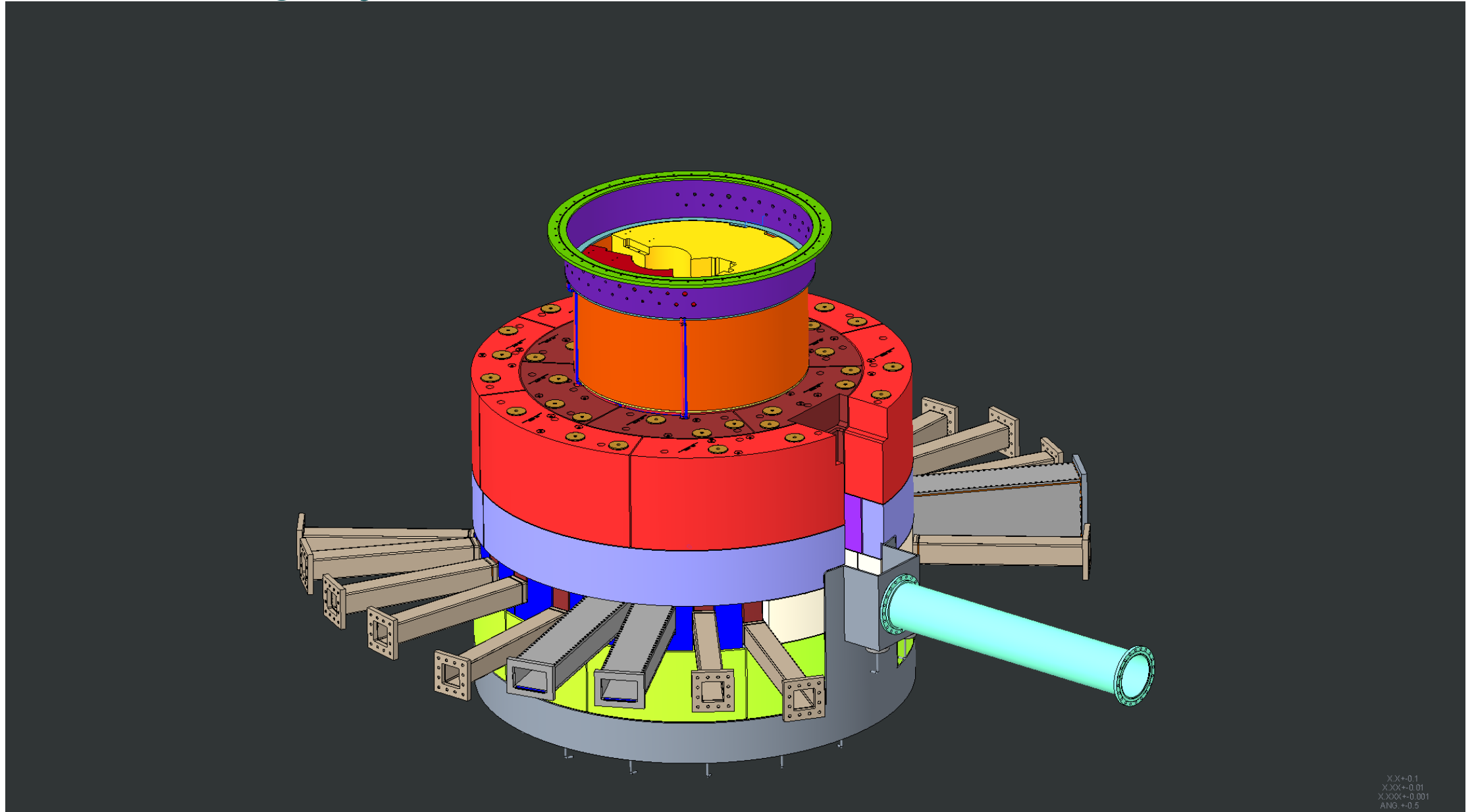


Bulk Shielding layer #4 inside course installed

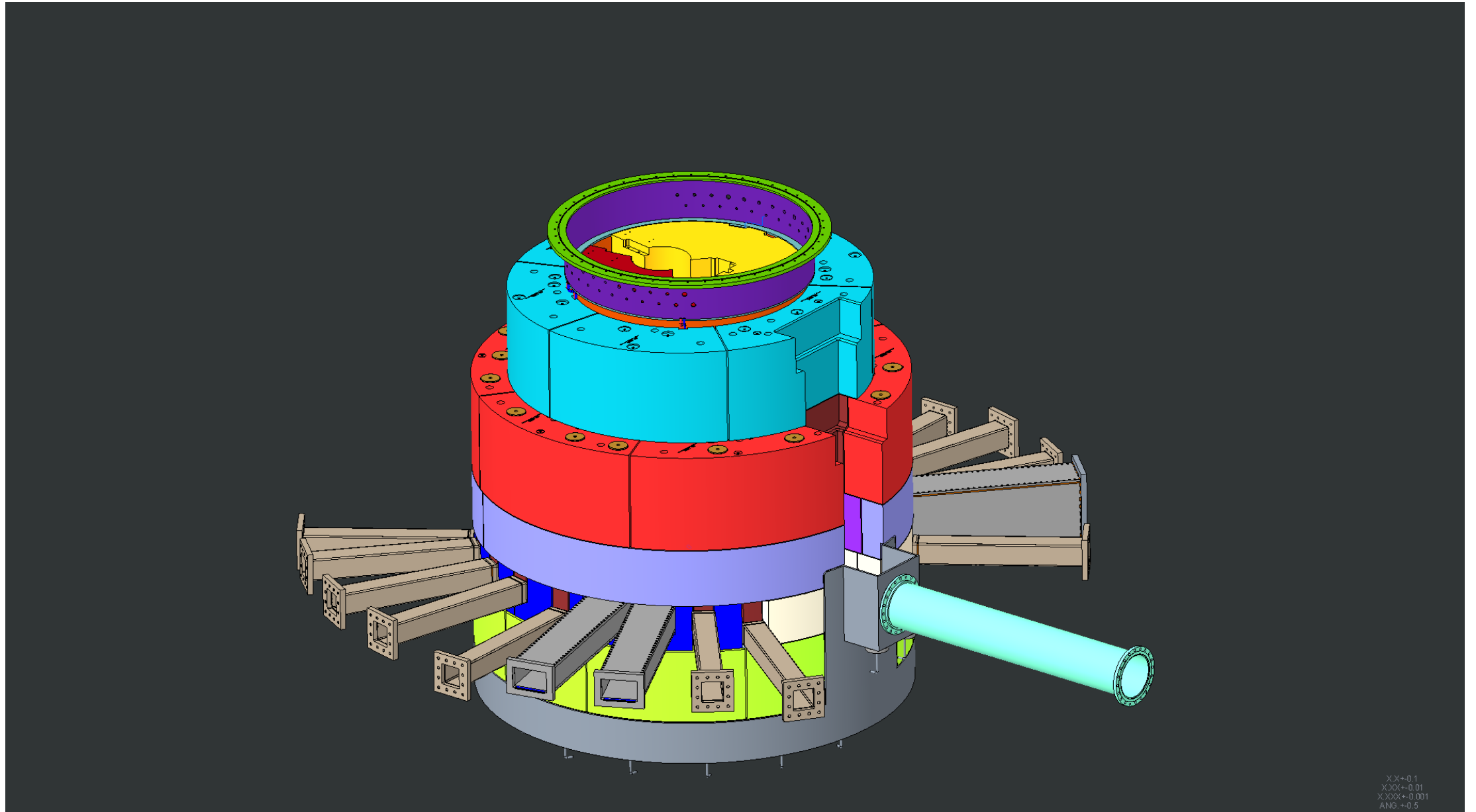


XXX+0.1
XXX+0.01
XXX+0.001
ANG +0.5

Bulk Shielding layer #4 outside course installed

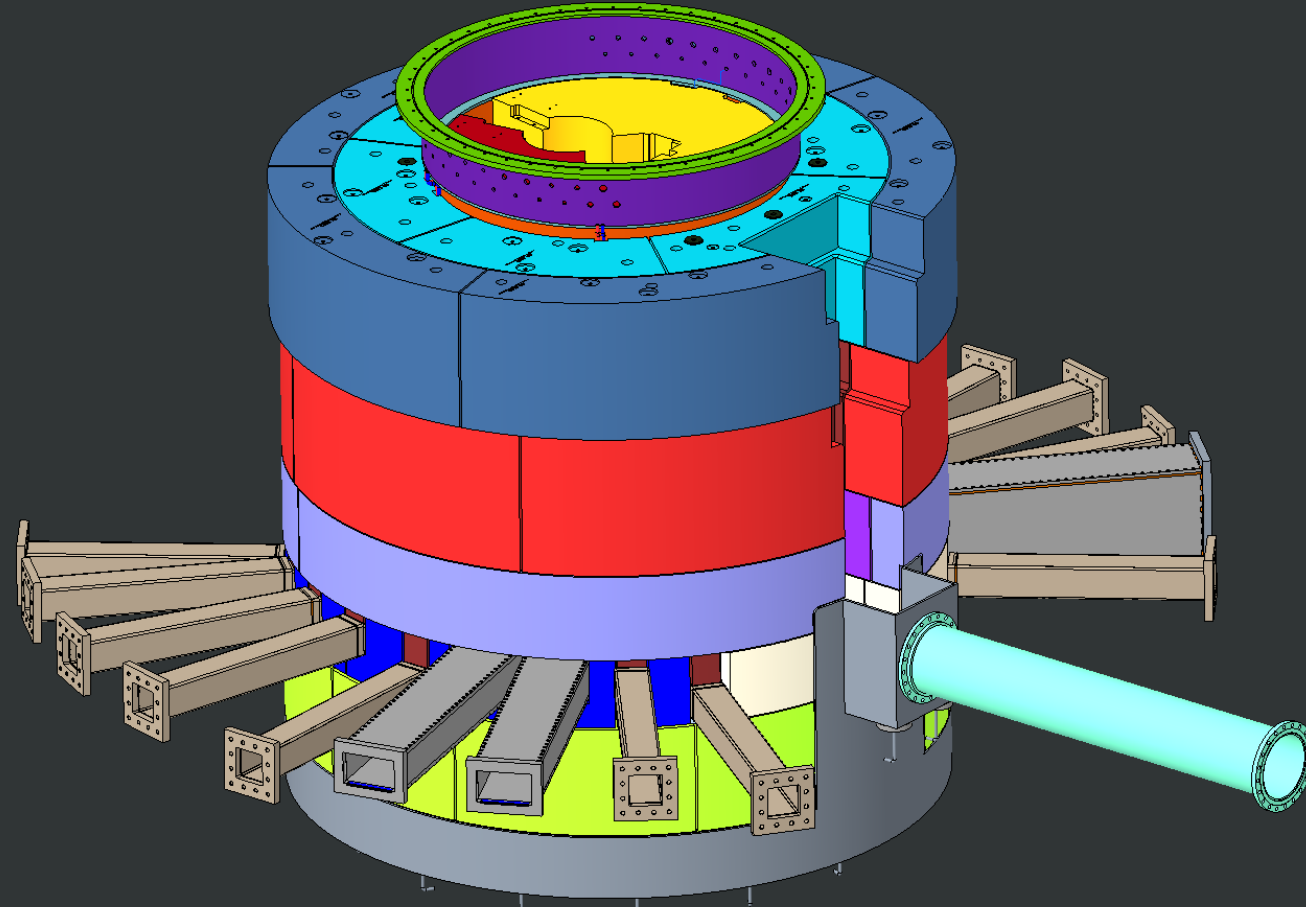


Bulk Shielding layer #5 inside course installed



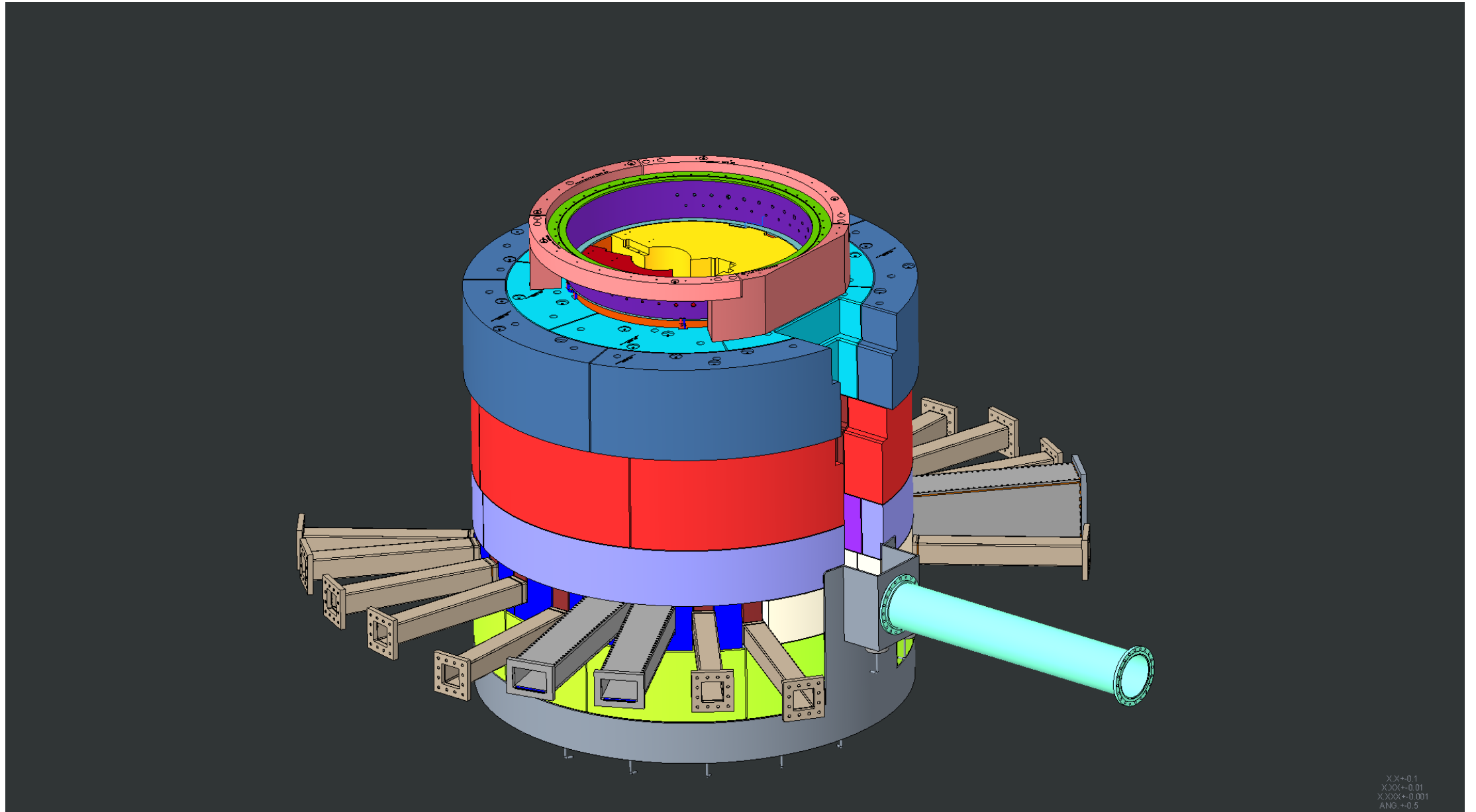
XX+0.1
XXX+0.01
XXXX+0.001
ANG +/-0.5

Bulk Shielding layer #5 outside course installed

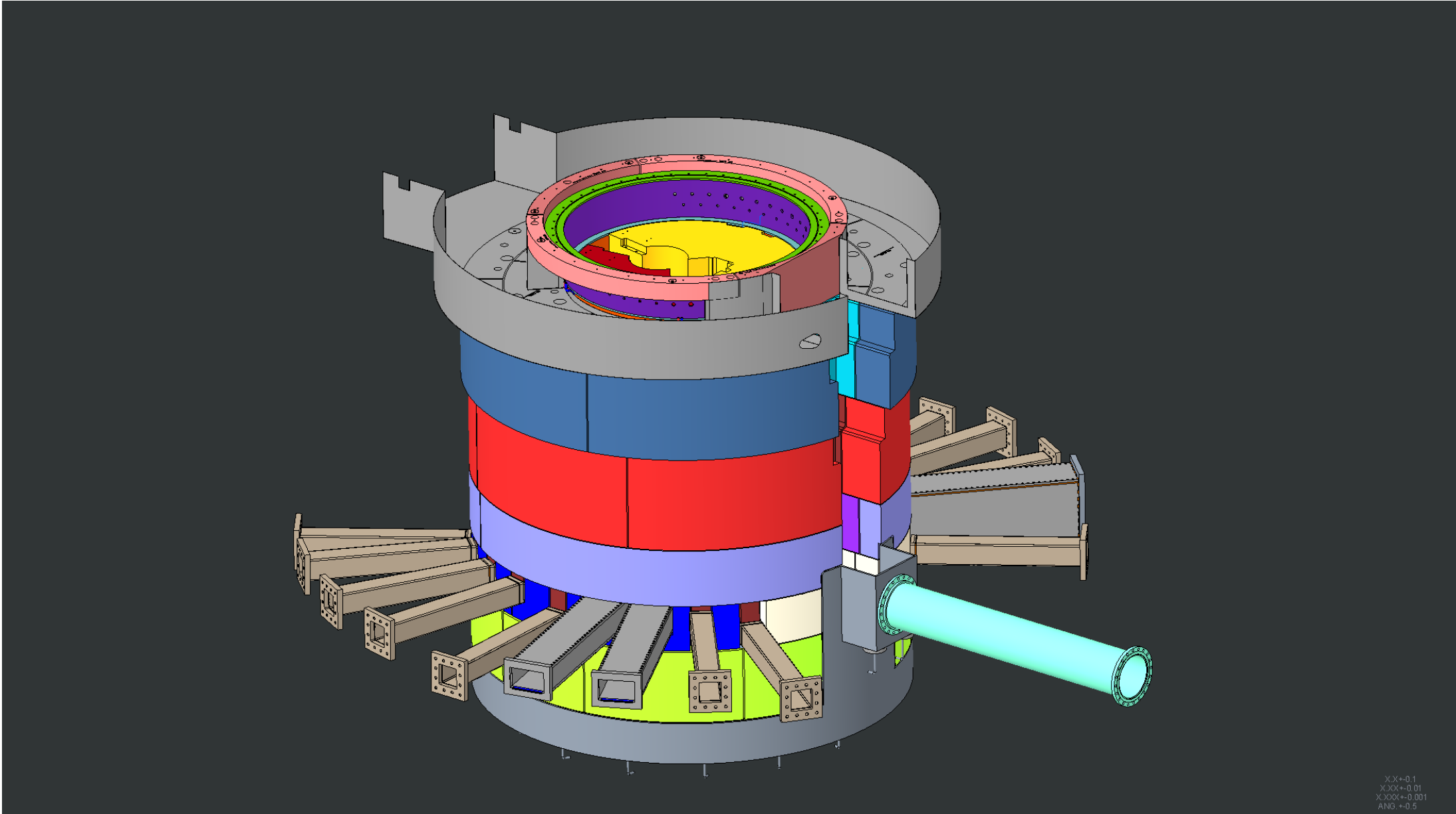


XXX+0.1
XXX+0.01
XXX+0.001
ANG +0.5

Bulk Shielding layer #6 inside course installed

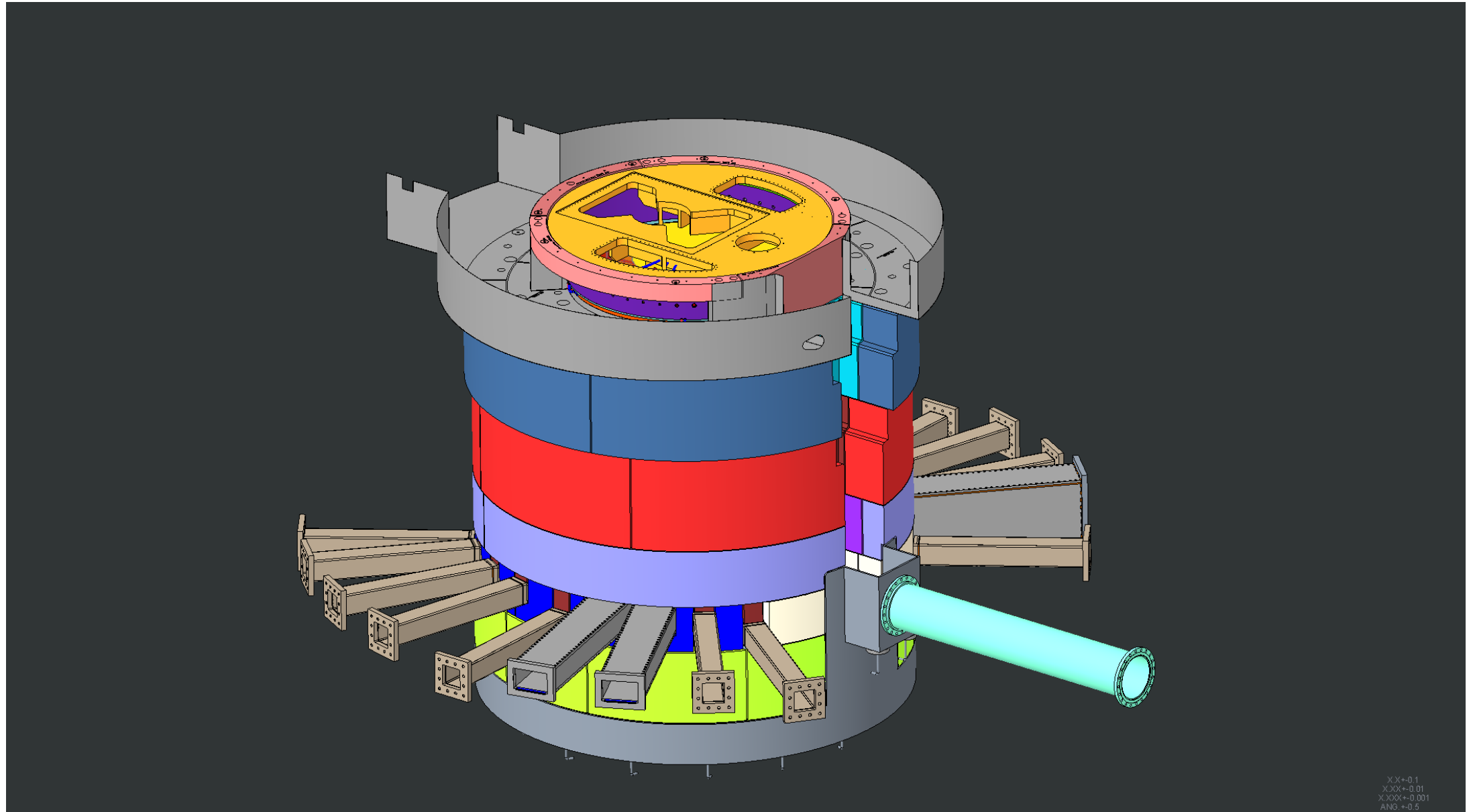


Pipe pans installed



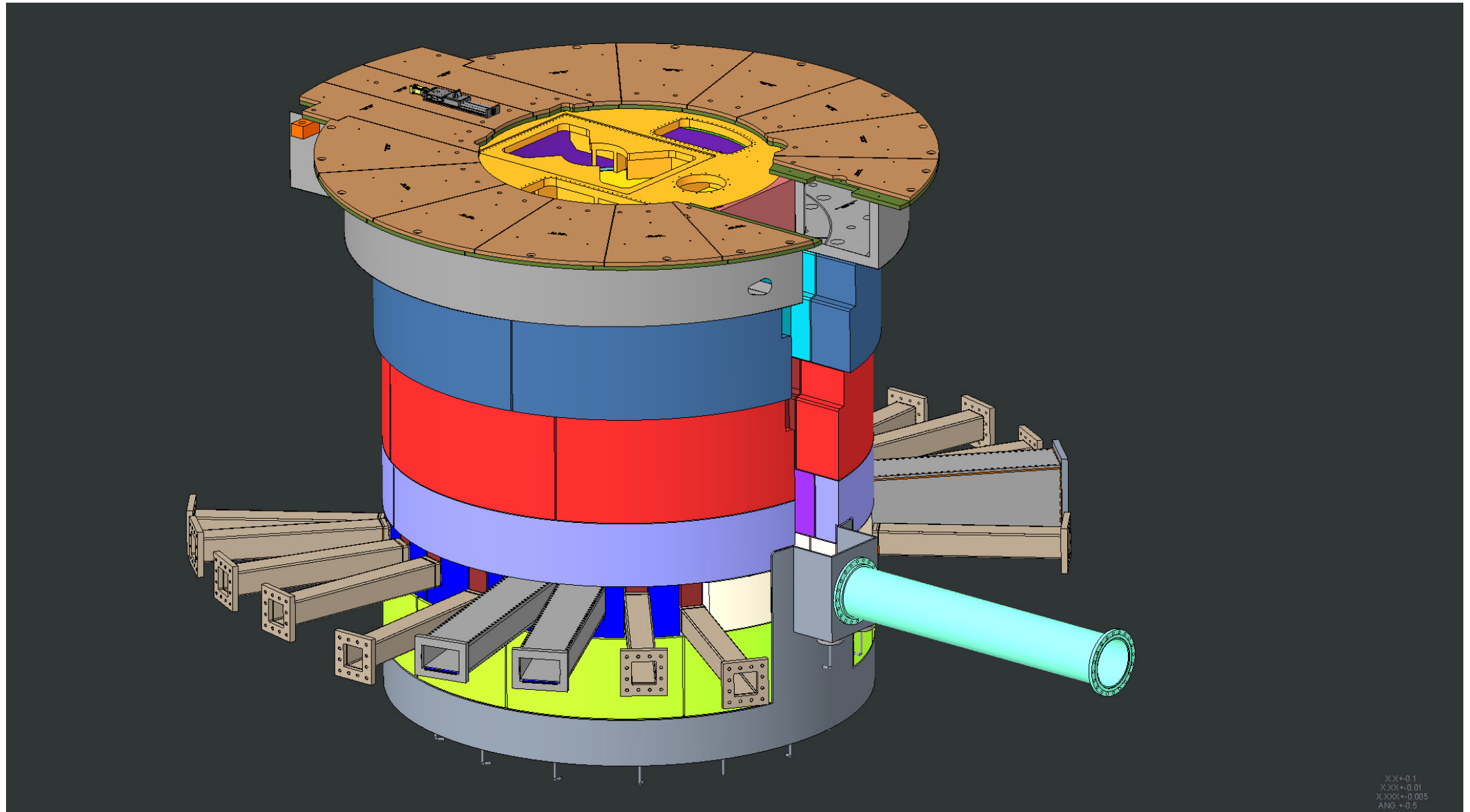
XX+-0.1
XXX+-0.01
XXXX+-0.001
ANG +/-0.5

Core Vessel lid installed



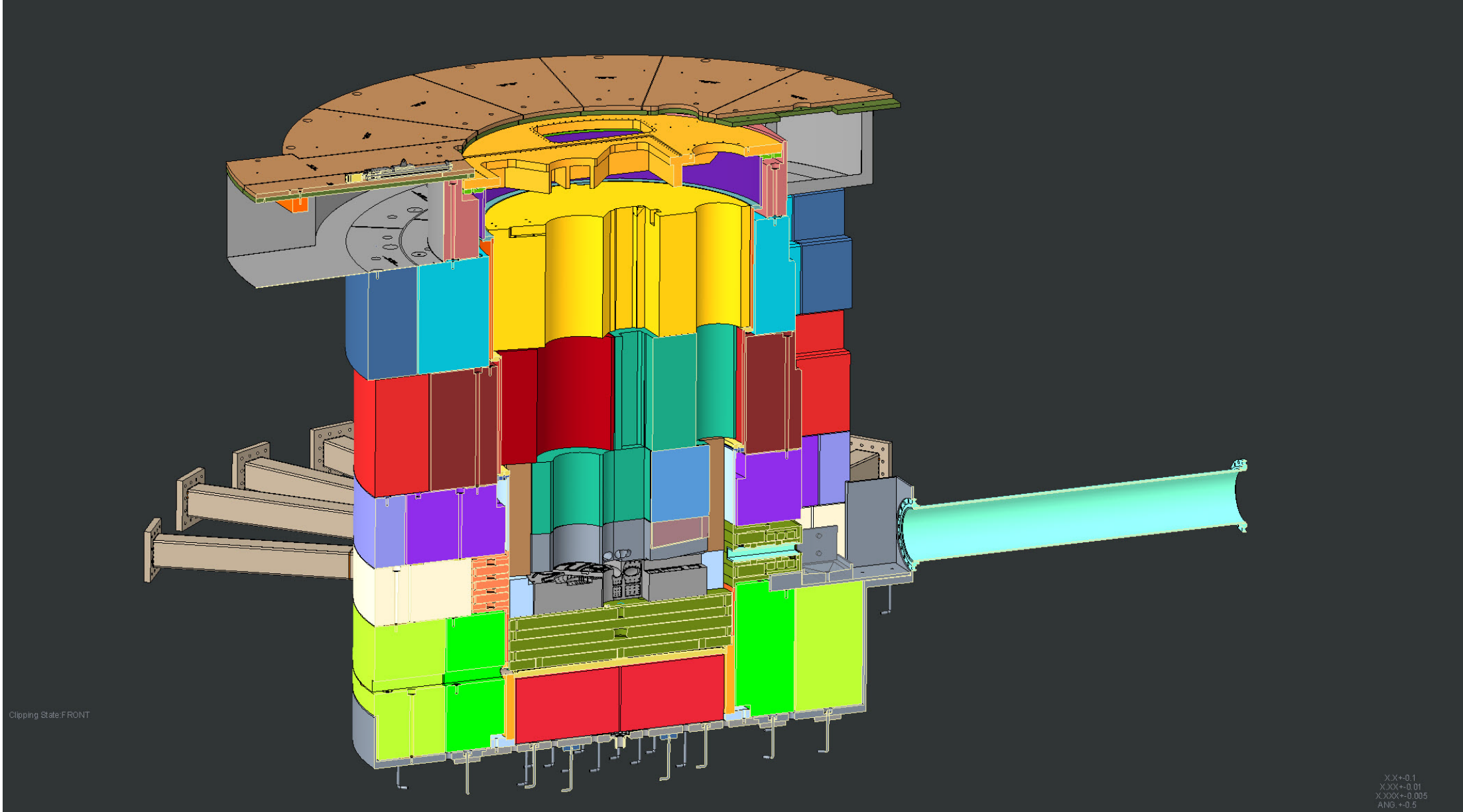
XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

Pipe pan cover shield plates installed

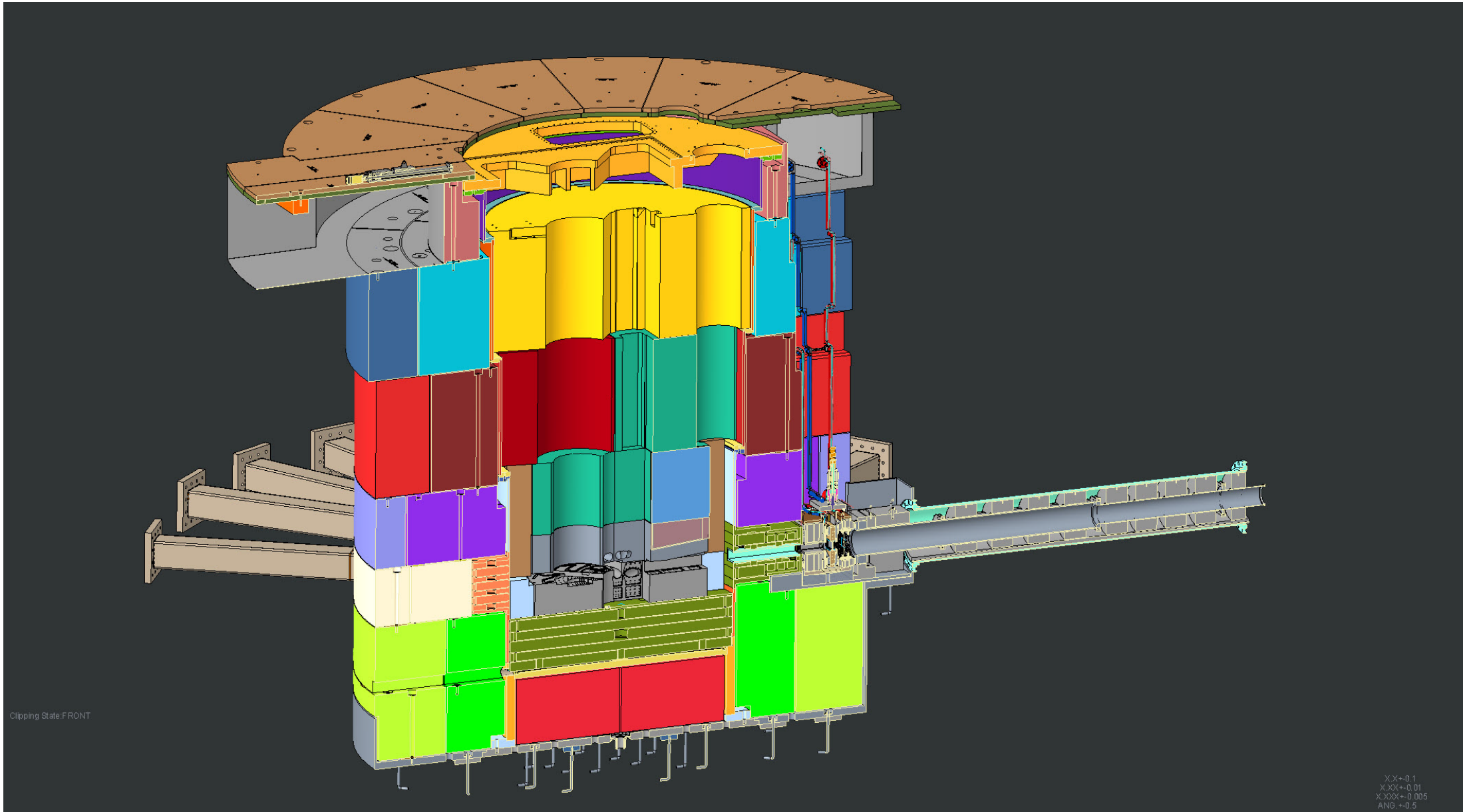


XX+0.1
X.XX+0.01
X.XXX+0.005
ANG. +0.5

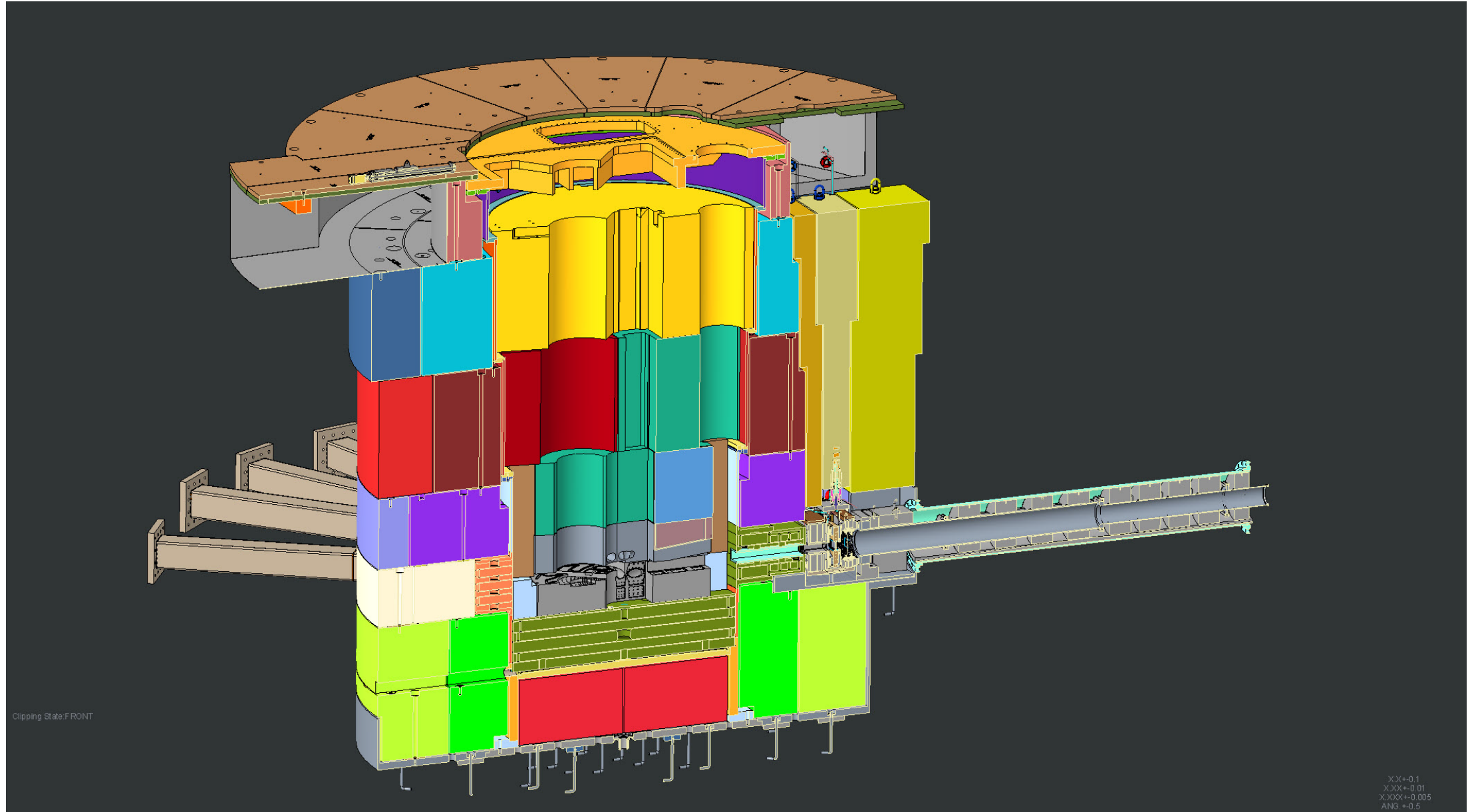
Cross section view of installation to this point



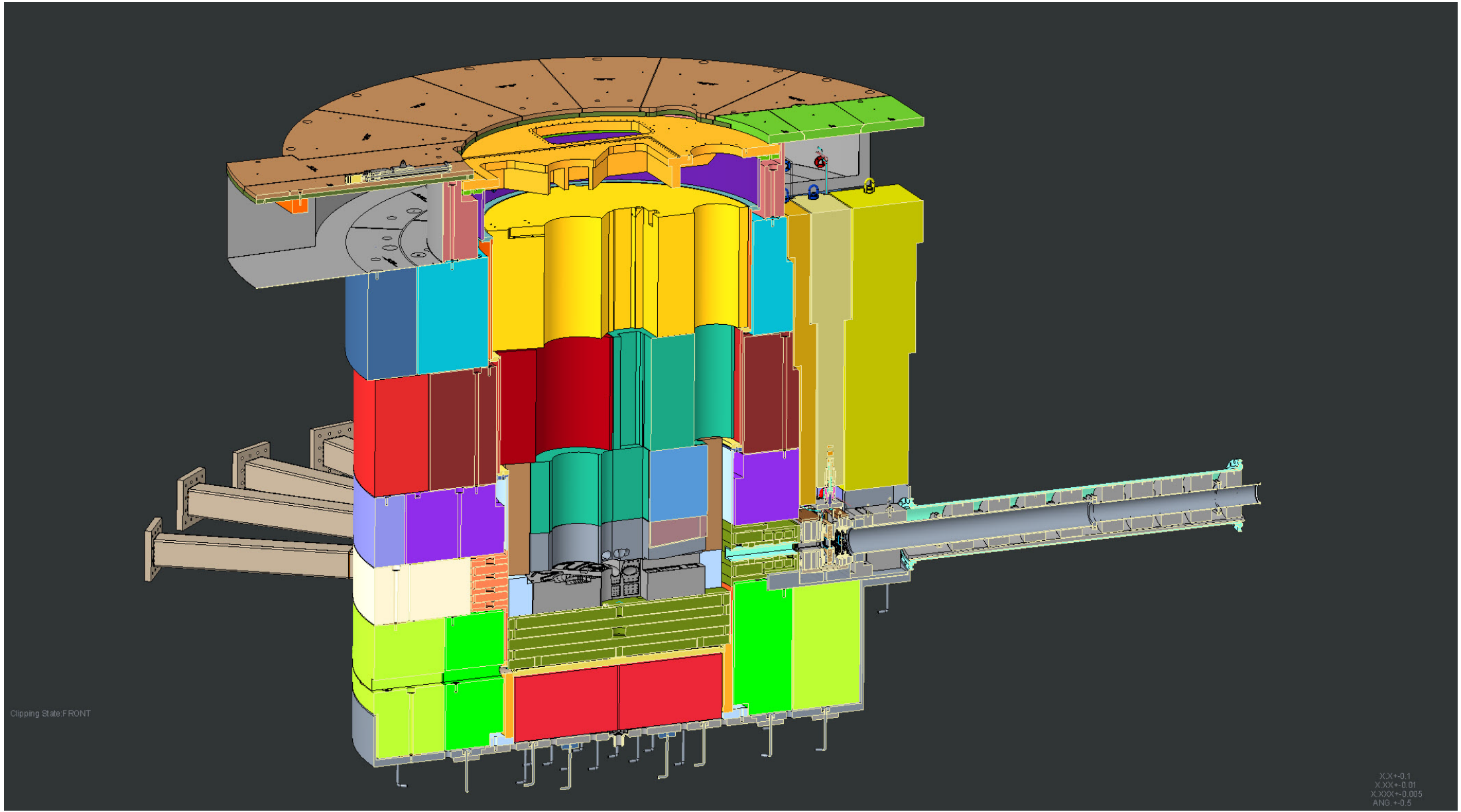
Proton Beam Window, PBW Shielding, PBTA Clamp installed



Removable bulk shielding above AIC installed



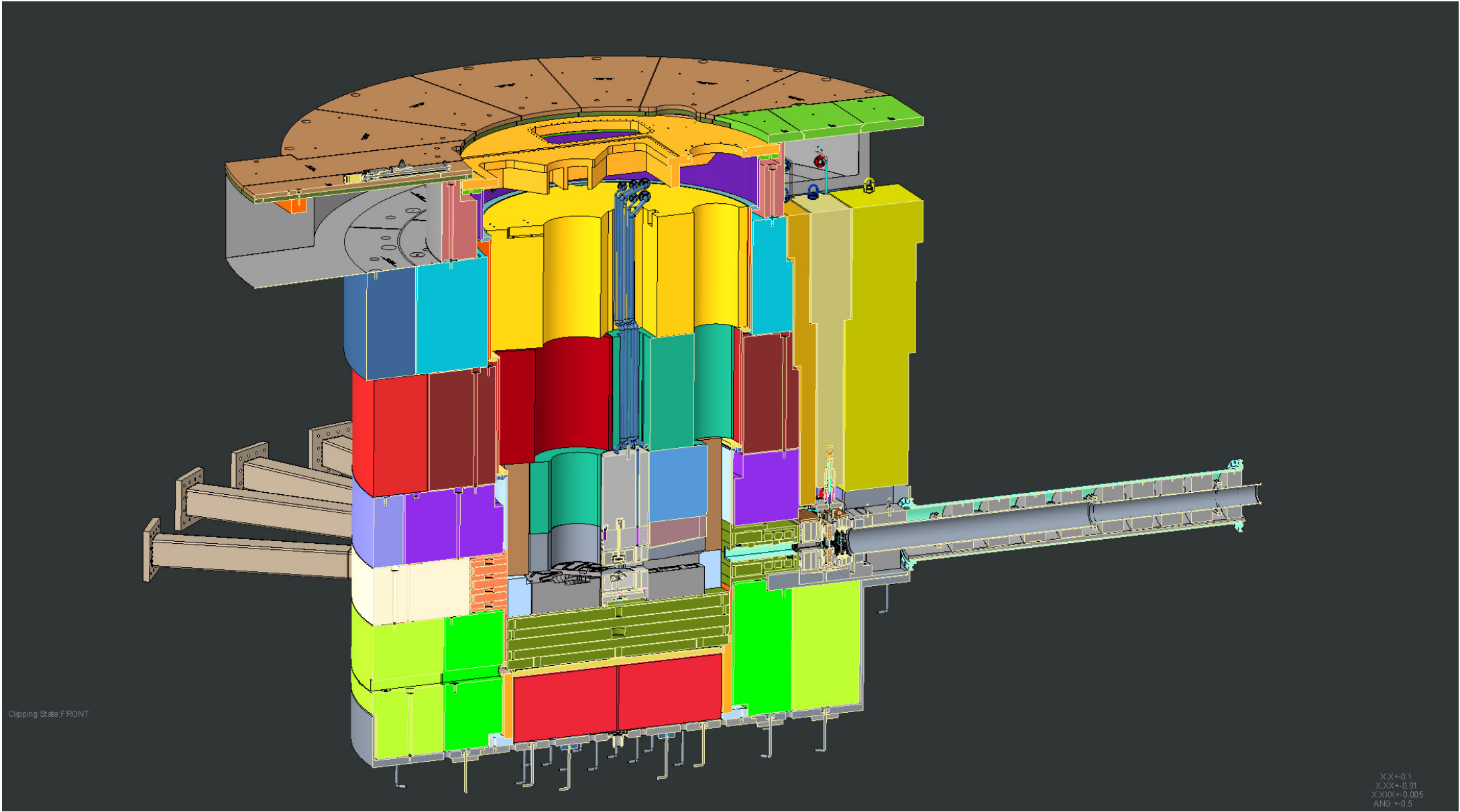
Removable shielding plates above AIC installed



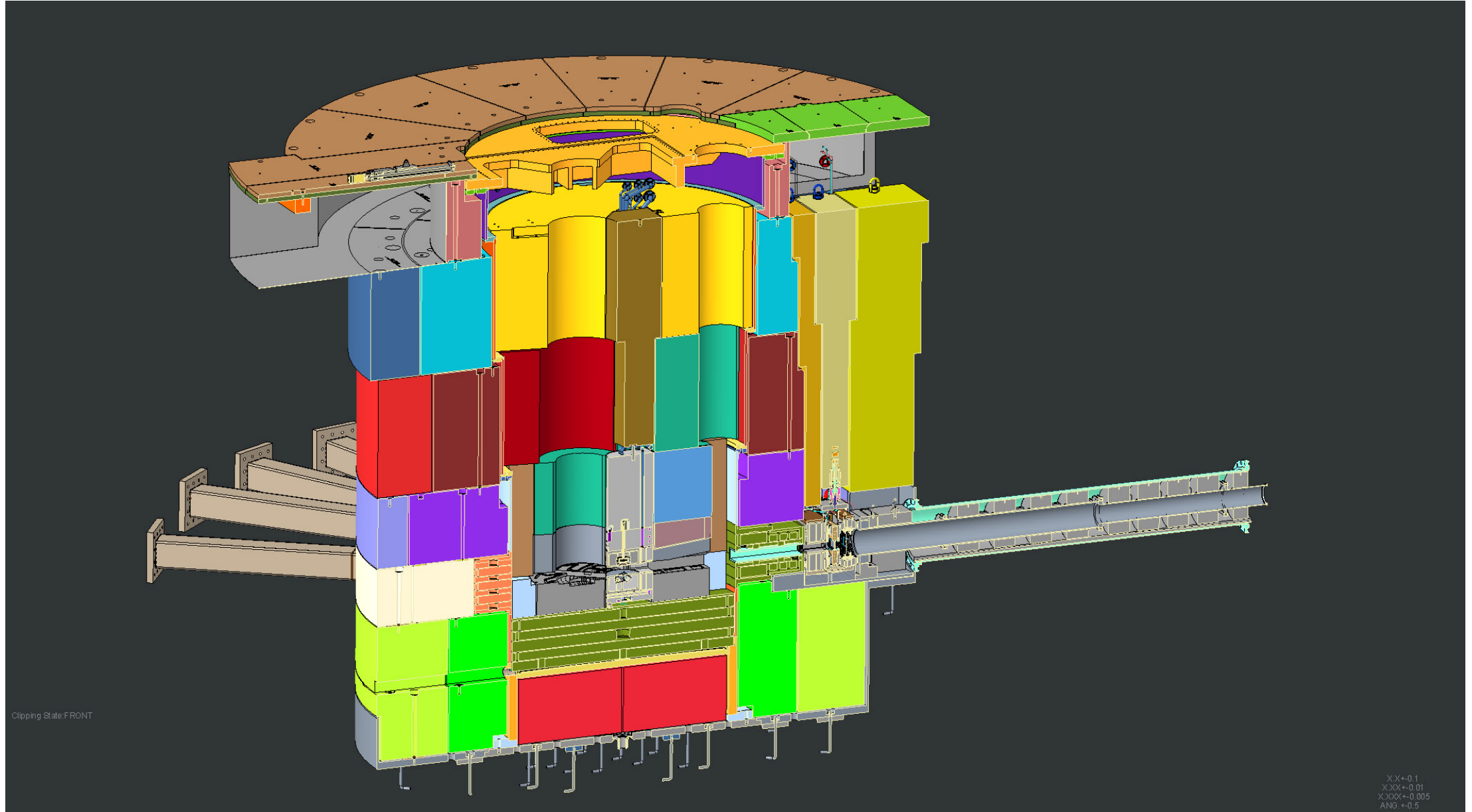
Clipping State: FRONT

XX+0.1
XXX+0.01
XXXX+0.005
ANG. +0.5

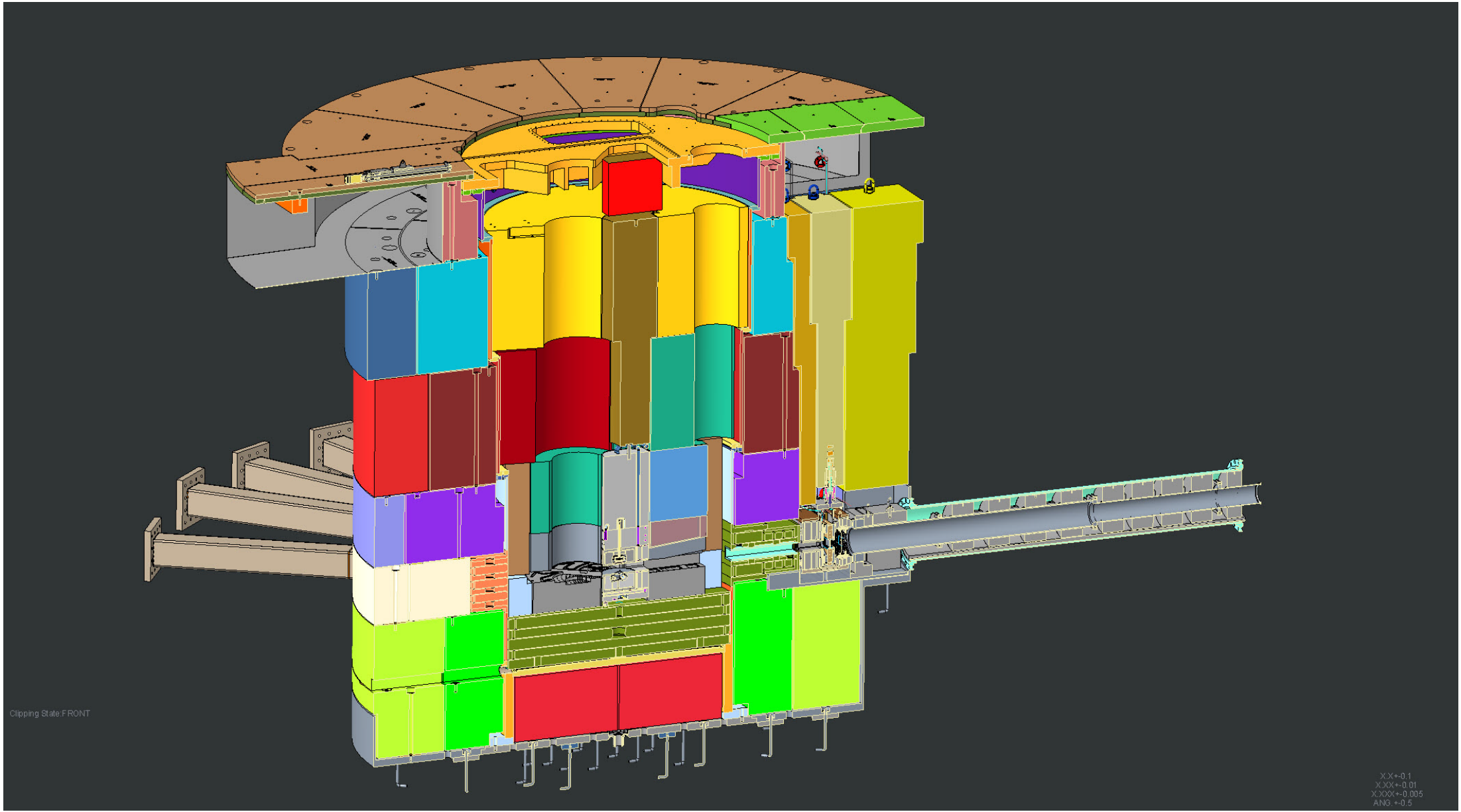
Moderator Reflector Assembly installed



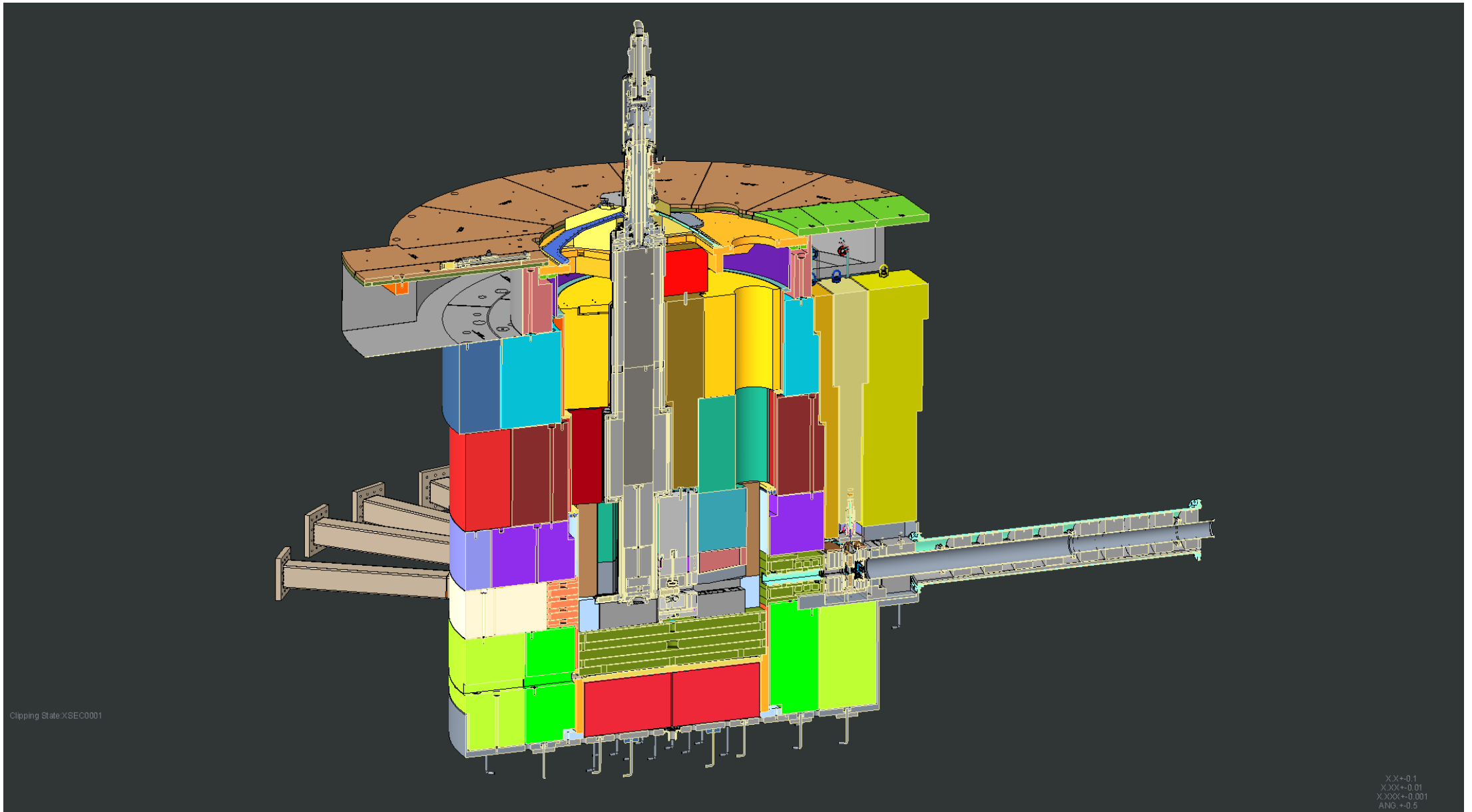
Moderator Reflector Assembly removable shielding installed



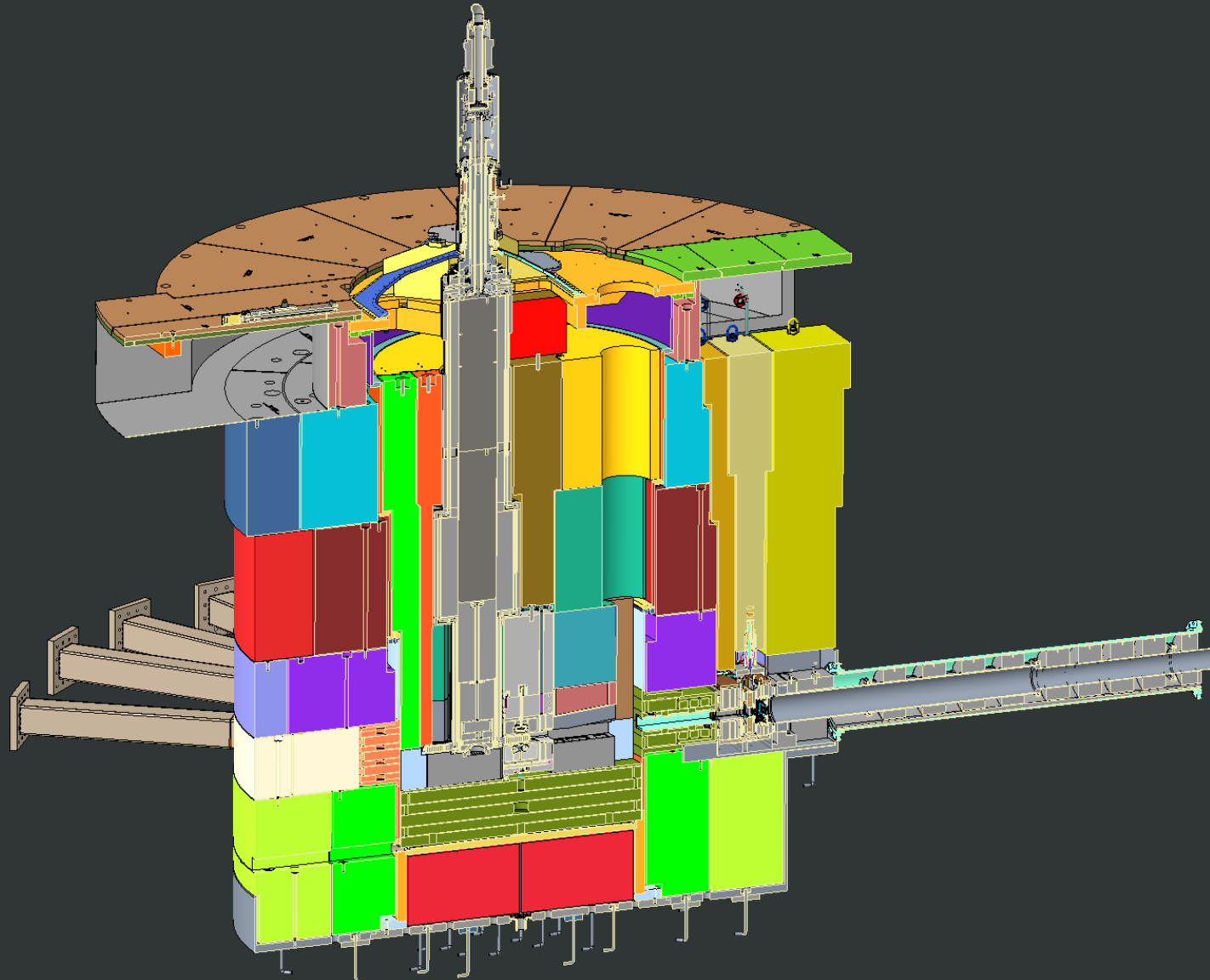
MRA utility pipe shielding installed



Target Assembly and lid tent installed



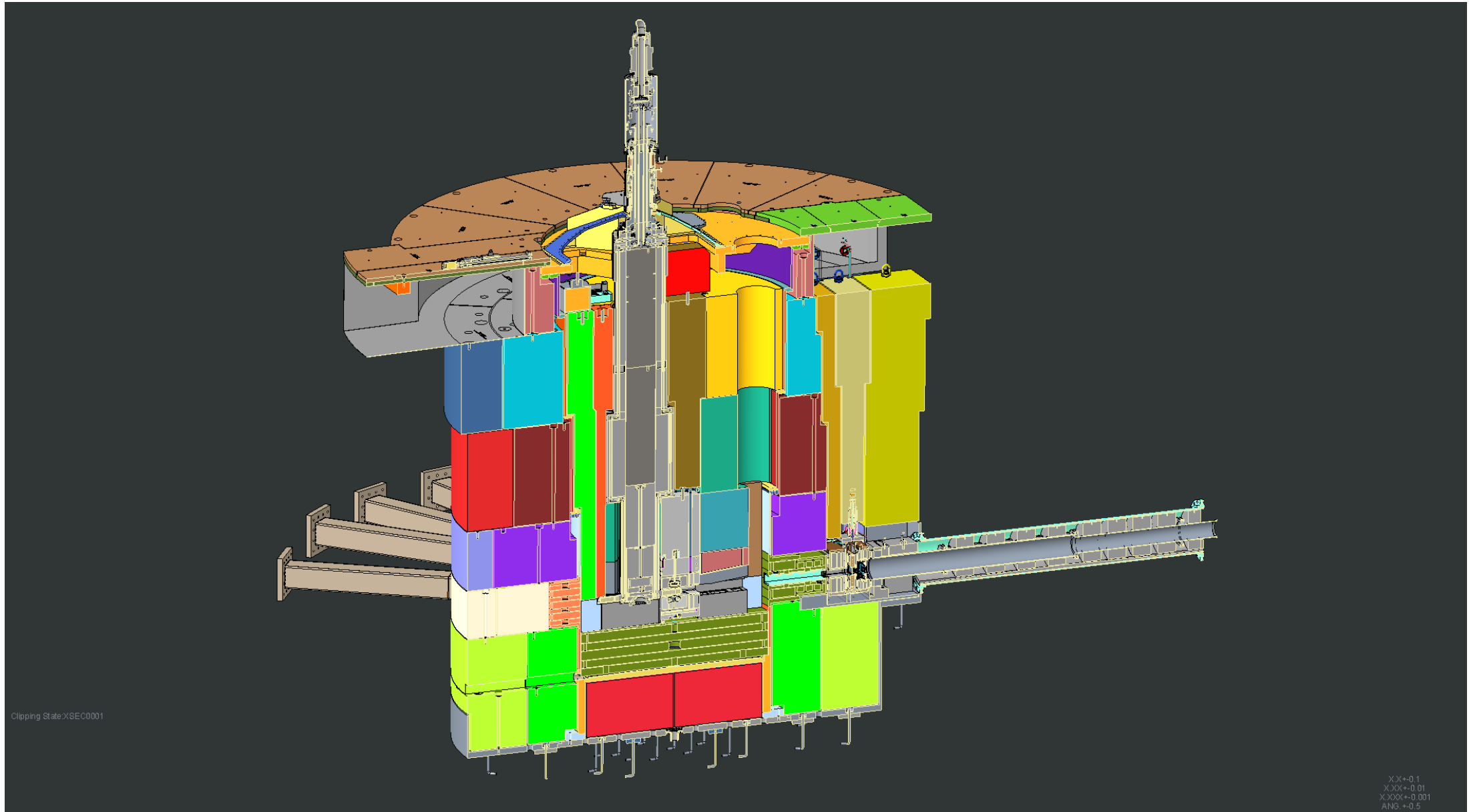
Target segment removable shielding installed



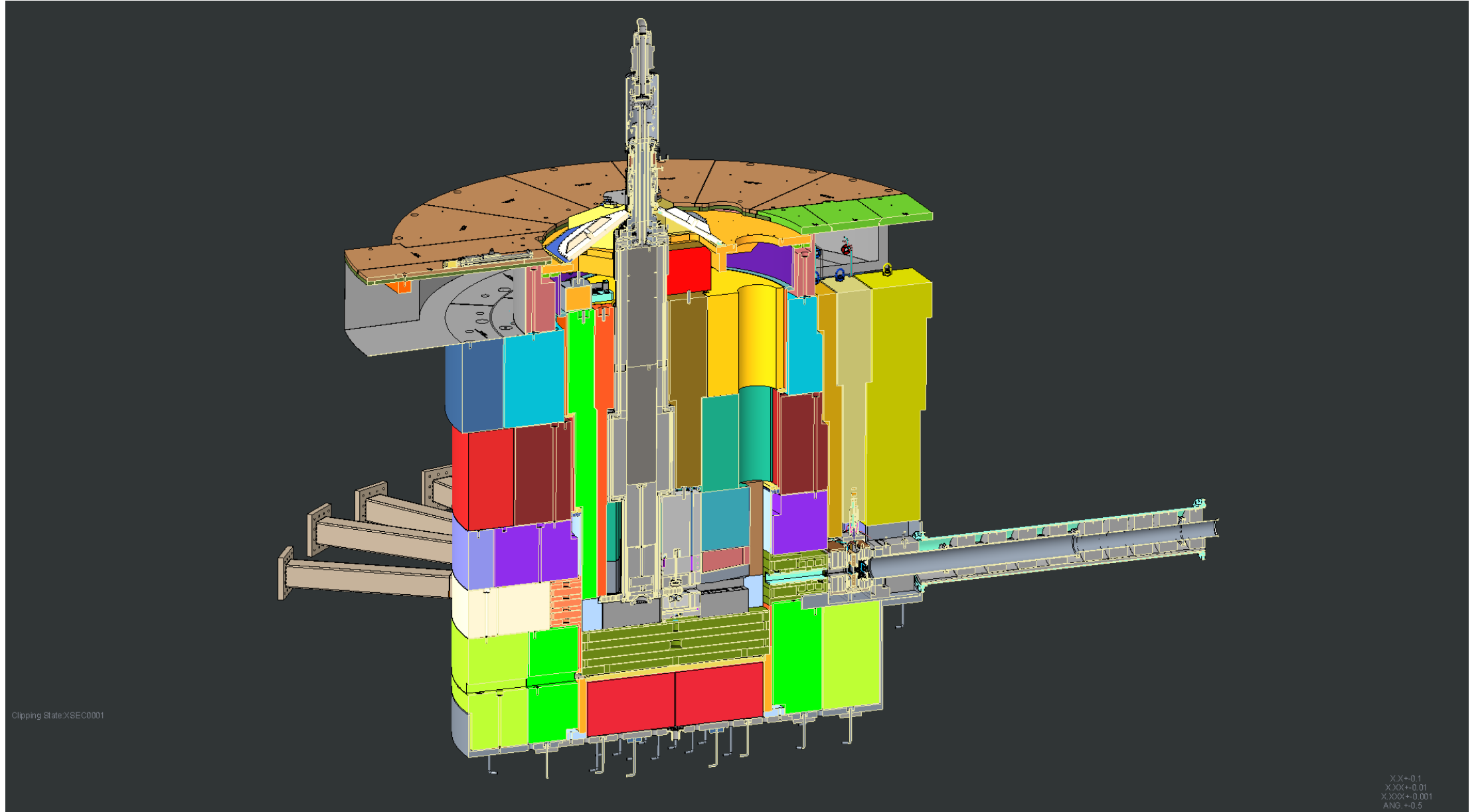
Clipping State: XSEC0001

XX+0.1
XXX+0.01
XXXX+0.001
ANG +0.5

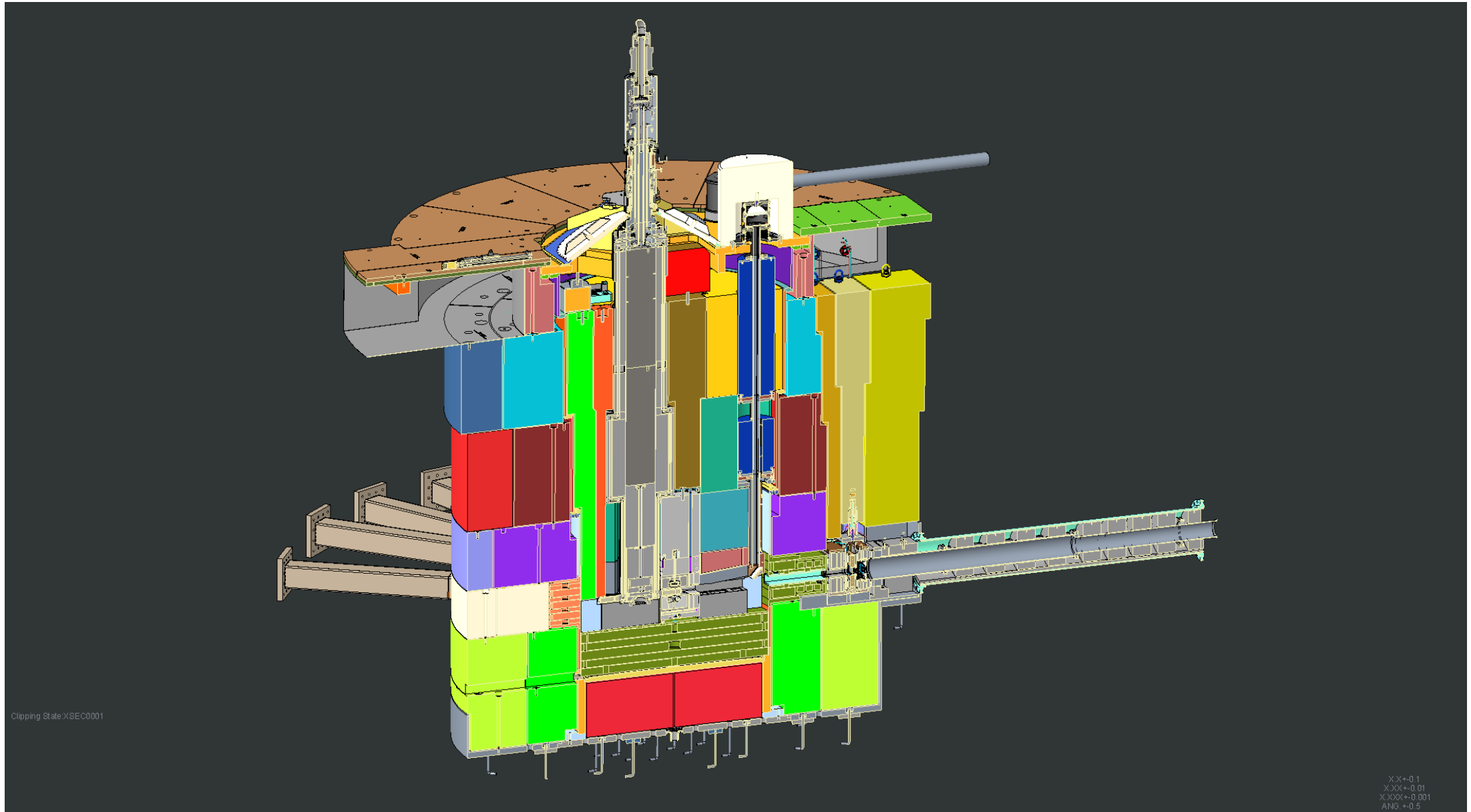
Gamma Gate installed



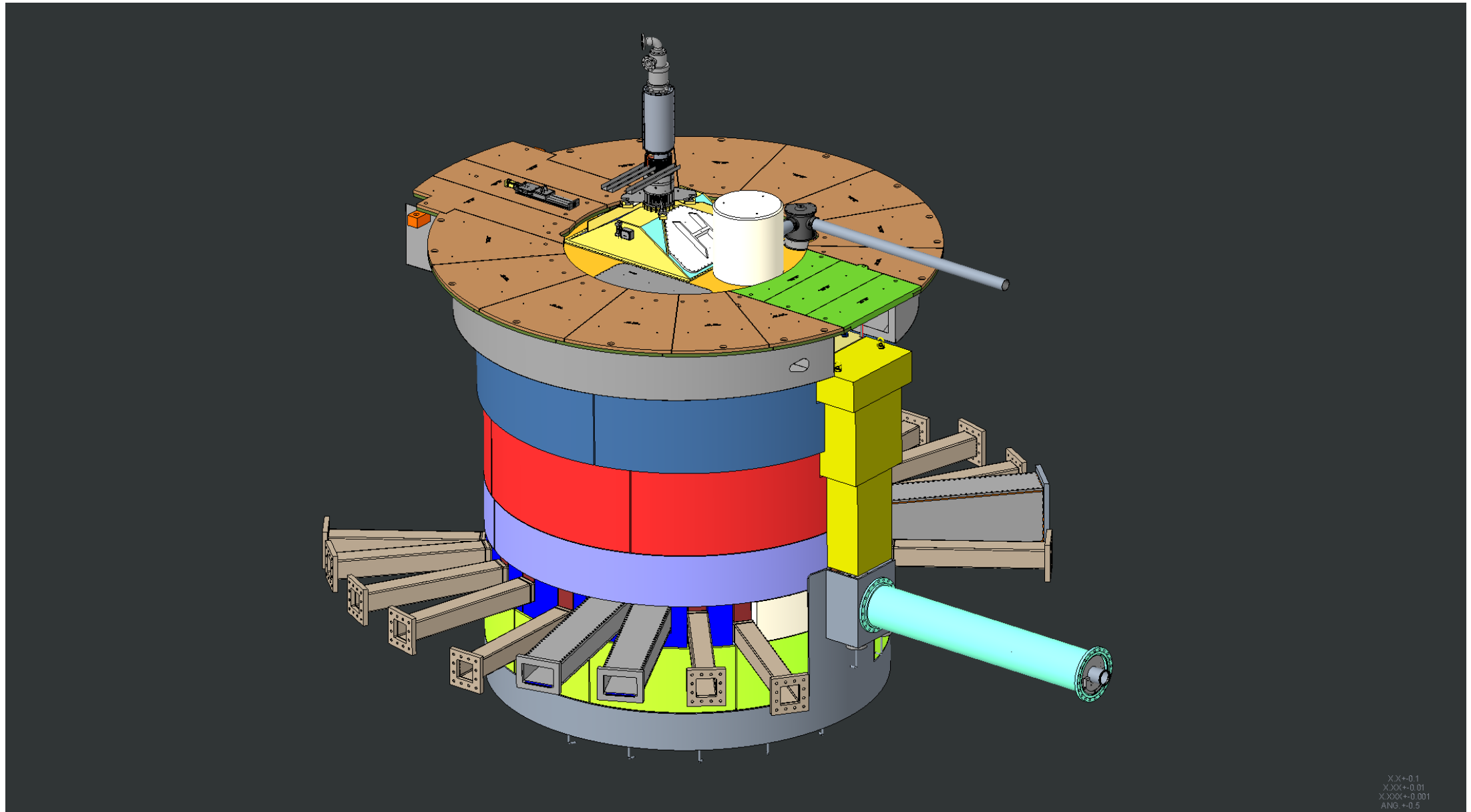
Target and MRA lid hatches installed



Target Viewing Periscope installed



Monolith technical components fully installed



XX+0.1
XXX+0.01
XXXX+0.001
ANG: +0.5