

^{144}Ce (A)NG next to Borexino

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APC Laboratory, France

Source logistic inside the SOX

pit

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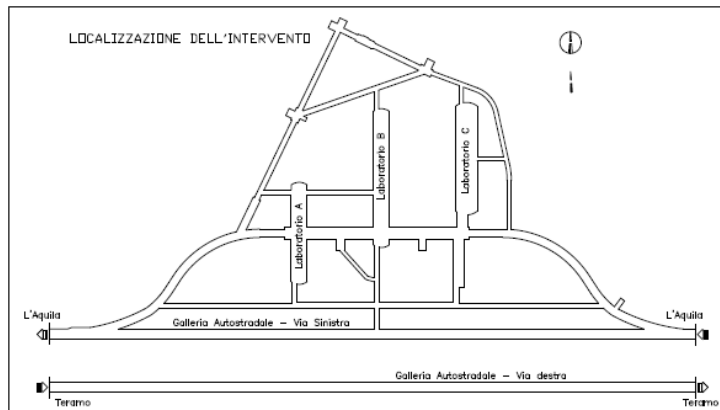


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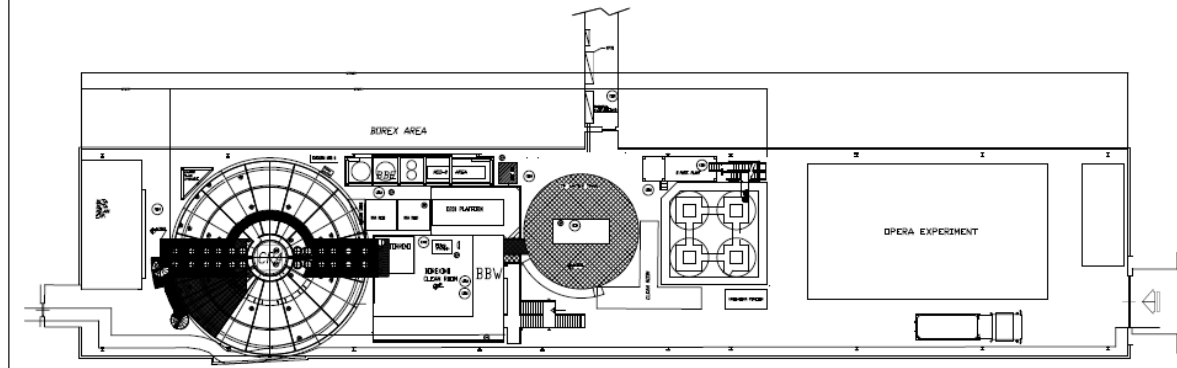
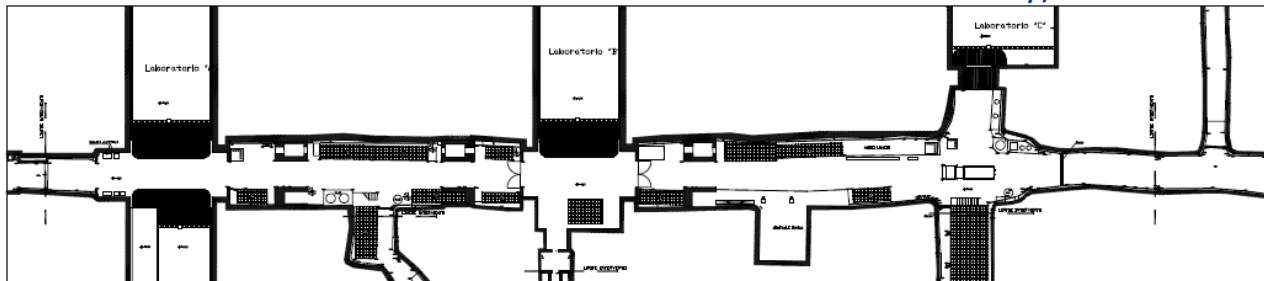
Outline of my talk

- Source logistics sequence in Hall C @ LNGS
- Source logistics sequence inside the SOX pit
- SOX pit modification
- SOX pit rails and trolley

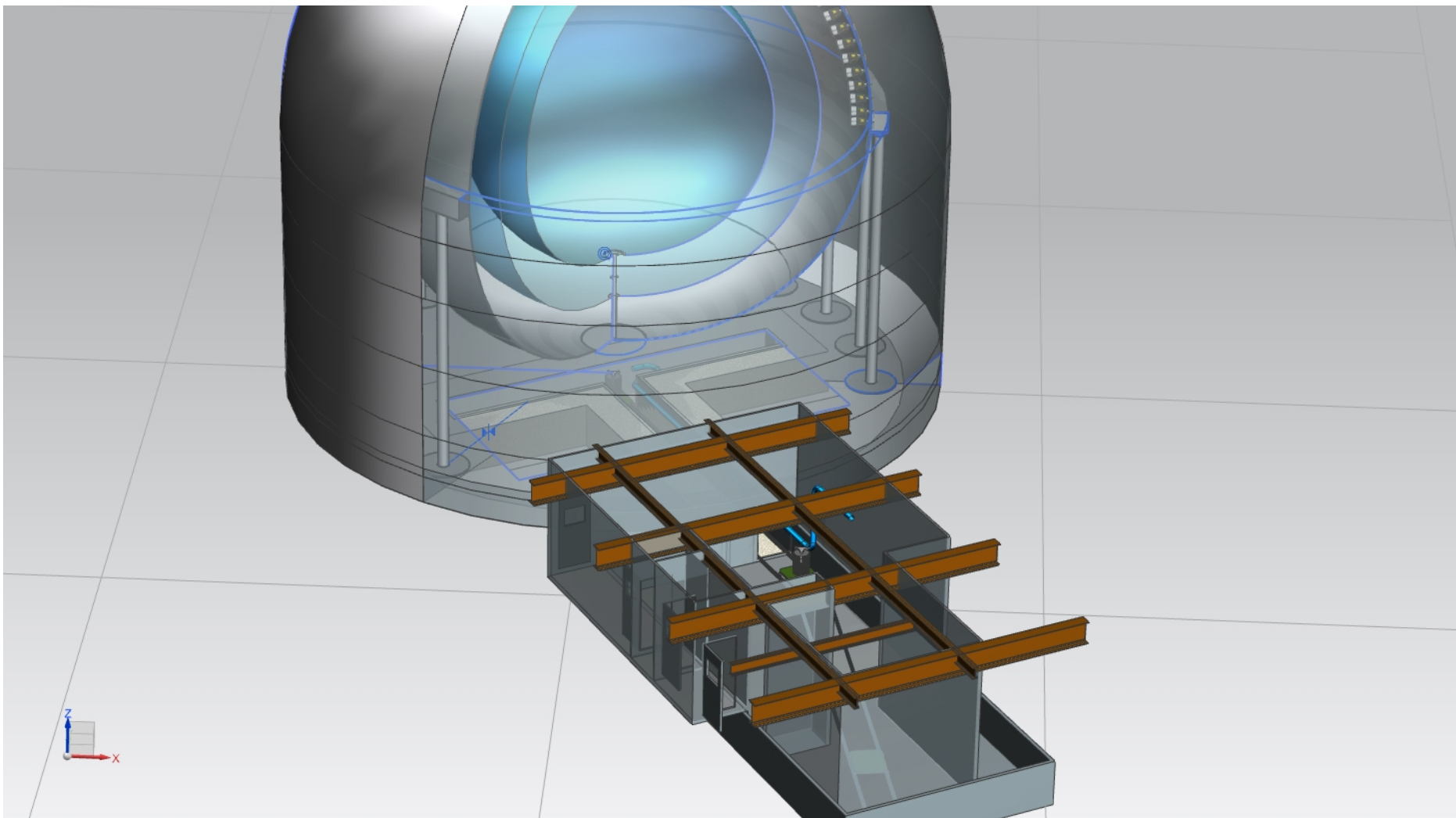
Source logistic sequence in Hall C @ LNGS



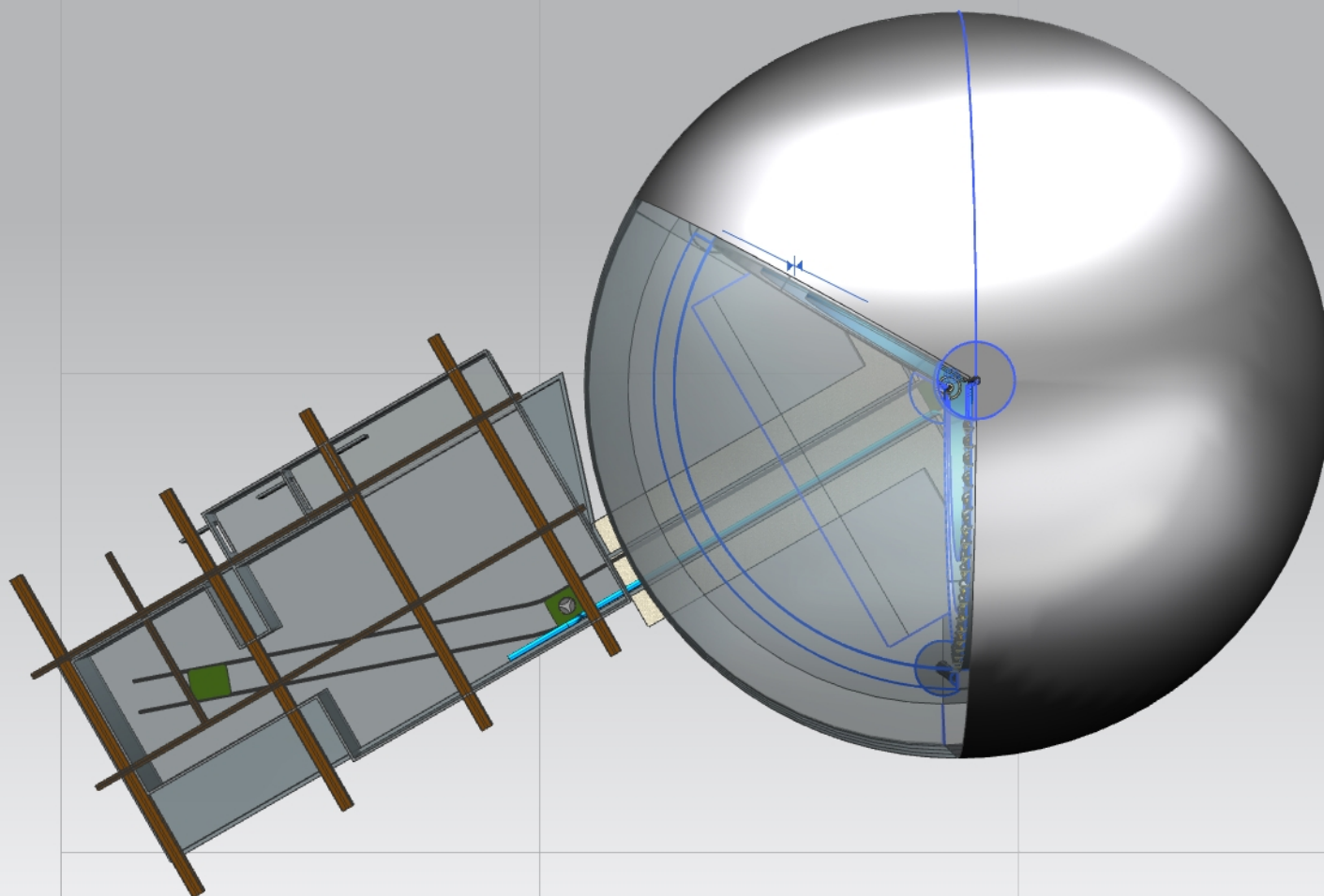
1. Truck enter the underground Lab
2. Truck enter Hall C and stop in front of Opera
3. Unload of the transportation container with 5t crane
4. Open the transportation container and move the source with 5t crane on a custom trans-pallet (trolley)
5. Move by hand the trans-pallet in front of the CR1
6. Remove the Al dissipation fins (in case of Cr source)
7. Insert the source inside the calorimeter with the CR1 winch (calorimeter will be already in CR1 over the tunnel rails and will be itself the trolley)



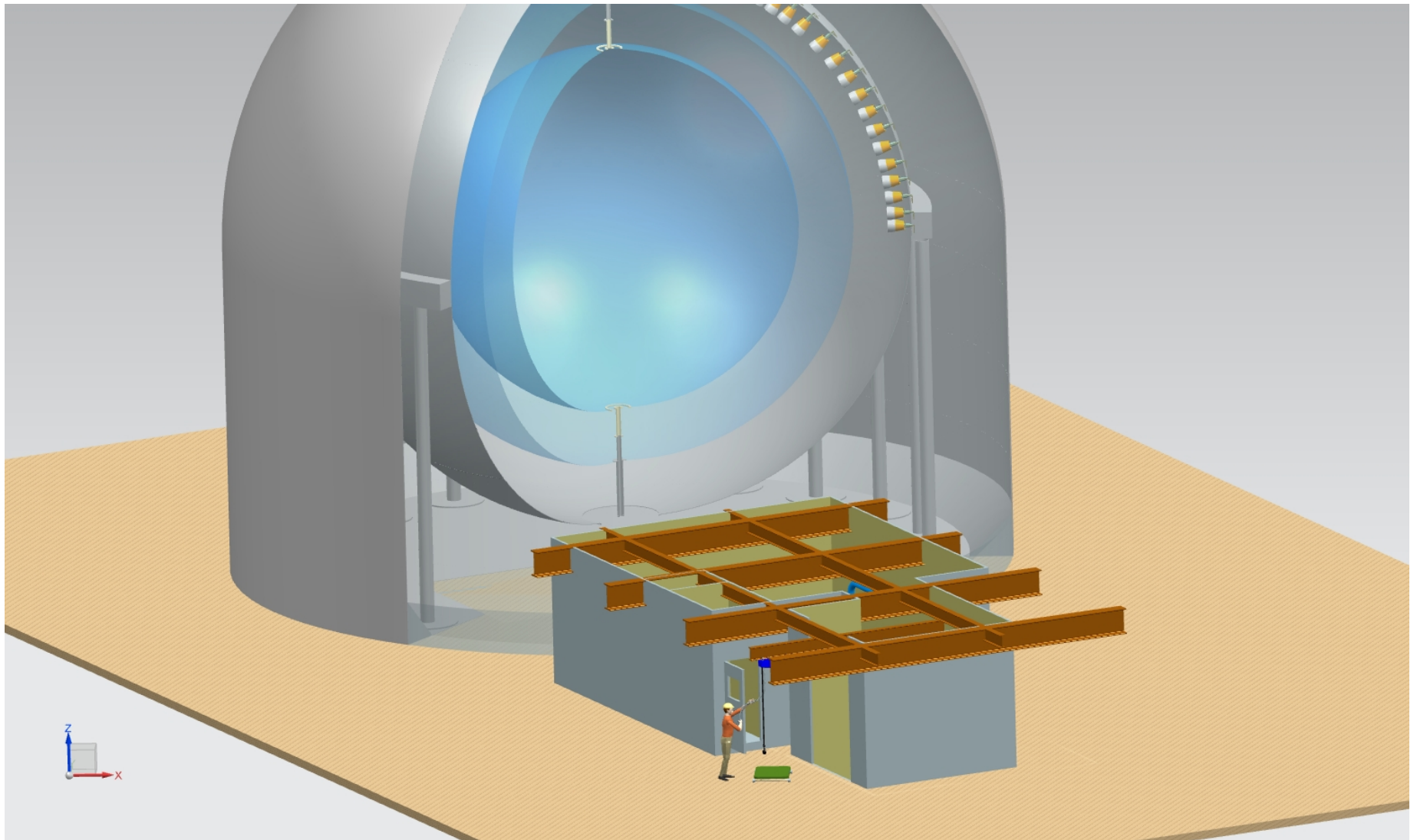
Source logistic inside SOX pit @ LNGS



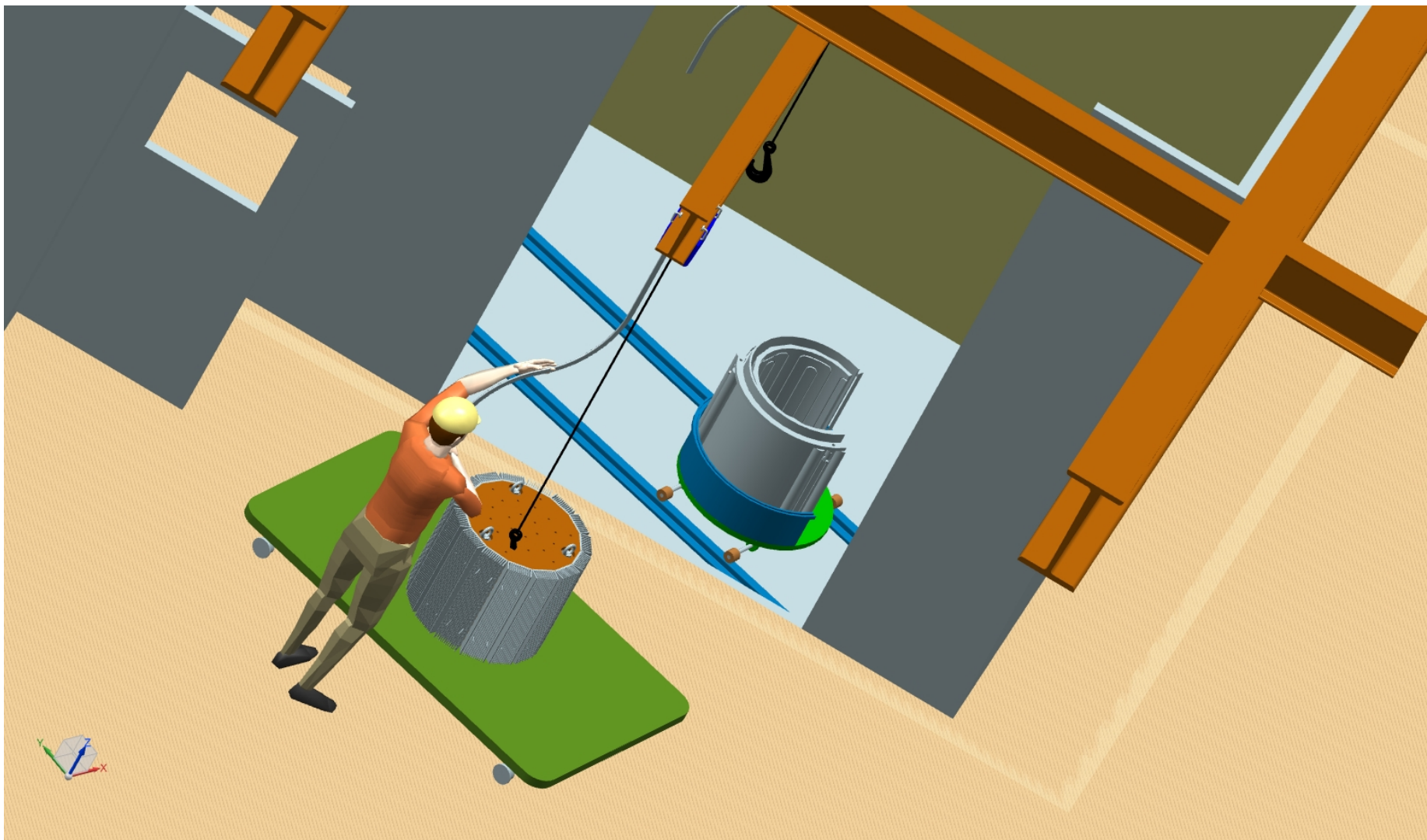
Source logistic inside SOX pit @ LNGS



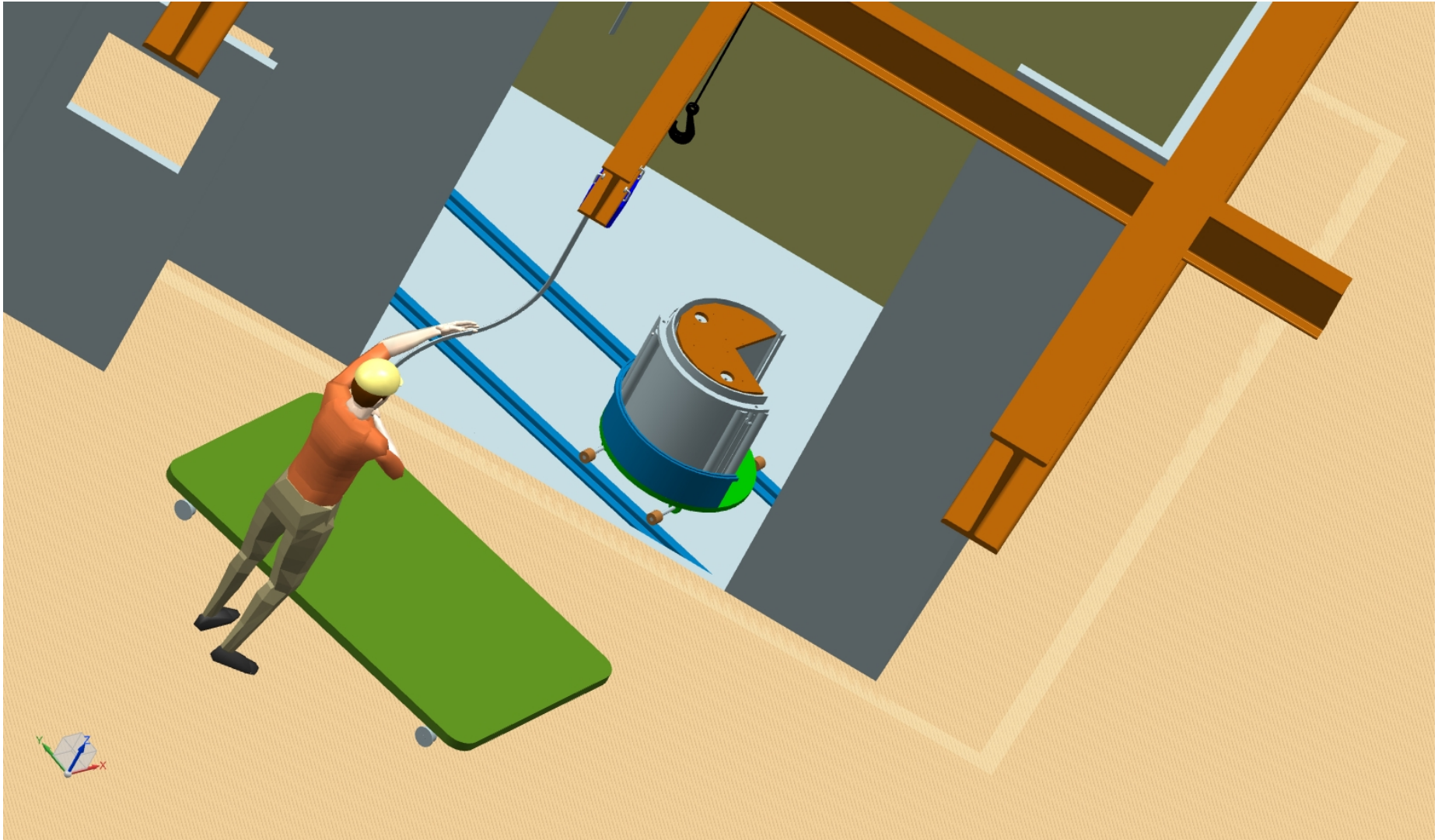
Source logistic inside SOX pit @ LNGS



Source logistic inside SOX pit @ LNGS



Source logistic inside SOX pit @ LNGS



SOX pit modification

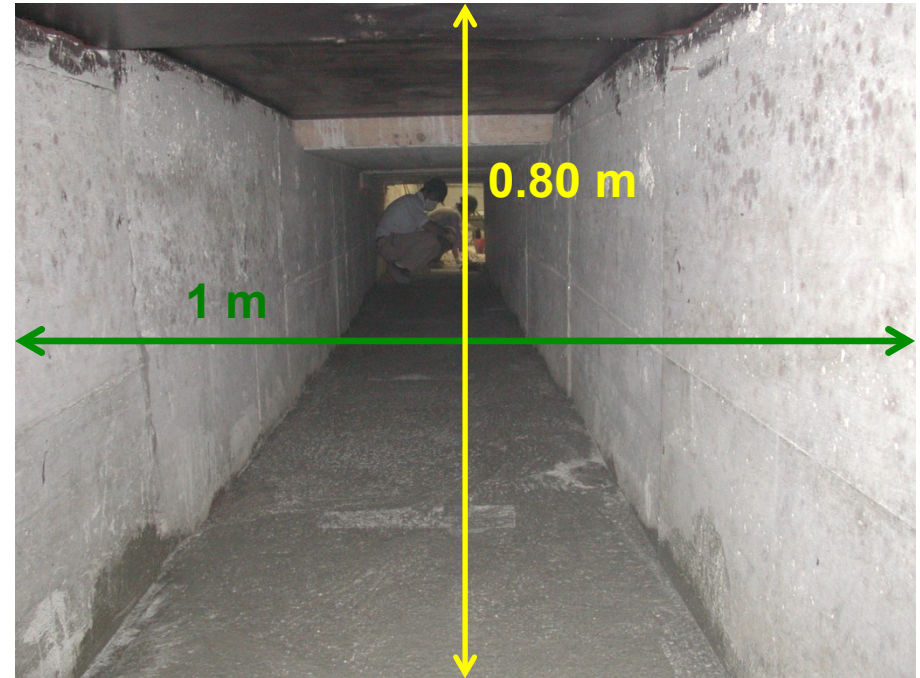
Some preliminary modification of the SOX pit / CR1 should be done in advance:

- Installation of a new 5 tons winch on the existing HEB beam
- Installation of two steel roads to slide the source on a trolley from the entrance of the CR1 to the end of the tunnel (rods will be secured to the CR1 steel floor by welding small steel anchor plates, calorimeter will be also the source trolley)
- CR1 has been designed with 2 removable panels on the south-west side that should be temporary removed
- CR1 tunnel manhole should be temporary removed
- Air ventilation system needed inside the tunnel for heat exchange and security
- Manual winch with steel rope for the trolley movement inside the tunnel
- Trolley proximity sensor at the end of the tunnel, thermometer sensors, radiation counters, lights, ecc...inside the tunnel

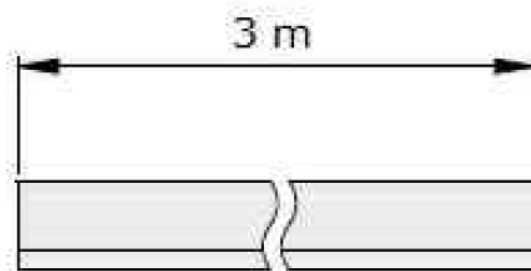
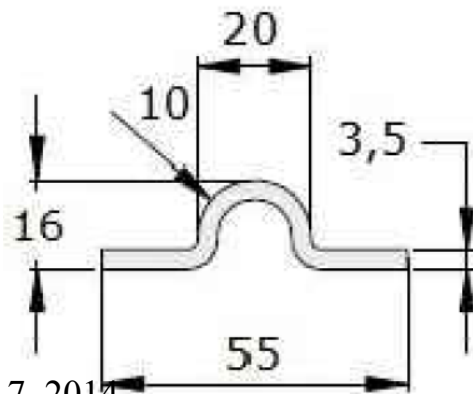
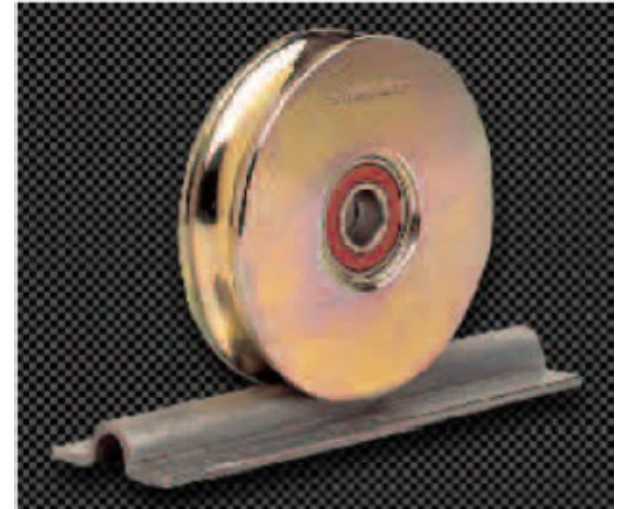
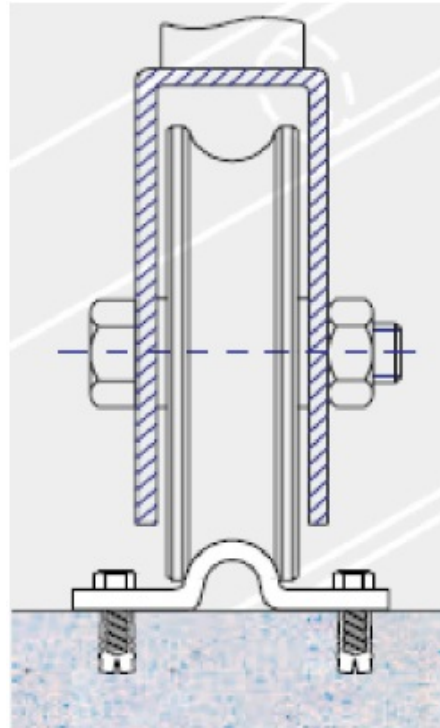
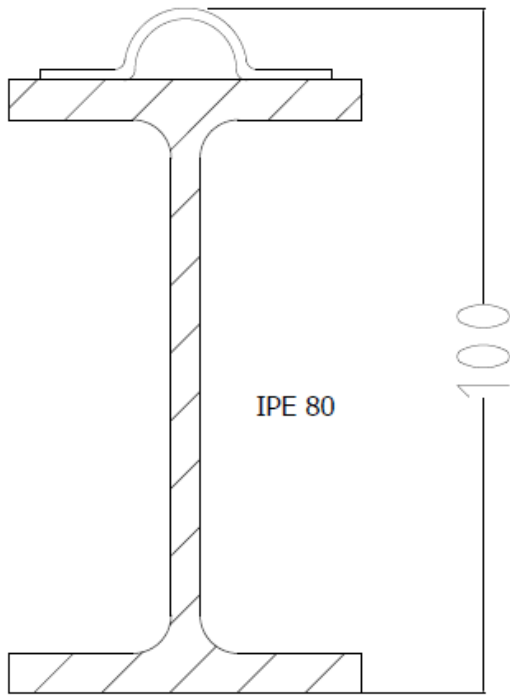
SOX pit modification



SOX pit modification



SOX pit rails

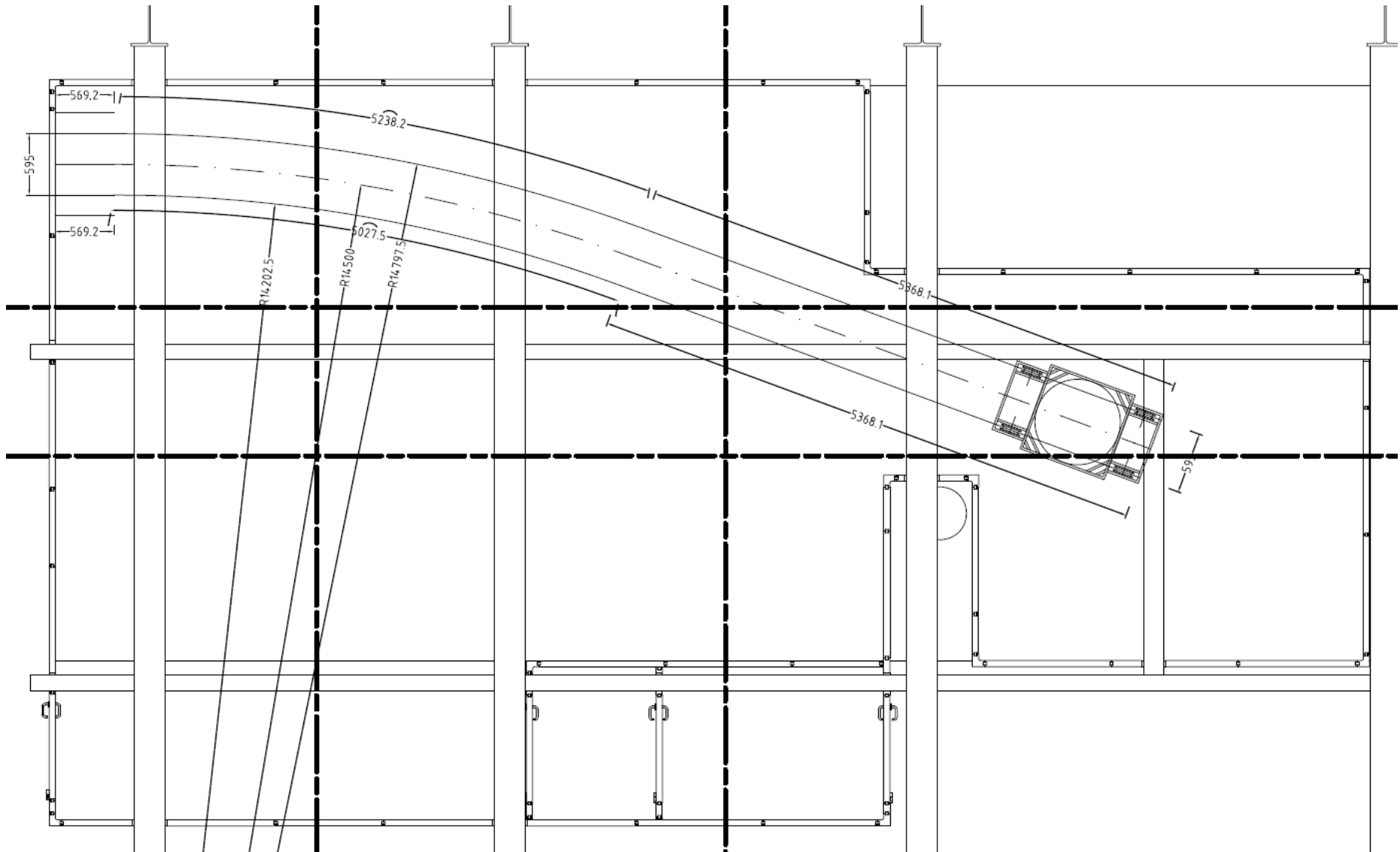


SOX pit rails



Impossible d'afficher l'image. Votre ordinateur manque peut-être de mémoire pour ouvrir l'image ou l'image est endommagée. Redémarrez l'ordinateur, puis ouvrez à nouveau le fichier. Si le x rouge est toujours affiché, vous devrez peut-être supprimer l'image avant de la réinsérer.

SOX pit rails



Backup slides

Xx solid rods

The idea is to realize a number of solid metallic rods from existing Cr by electro deposition on a cylinder support or with melting and reforming.

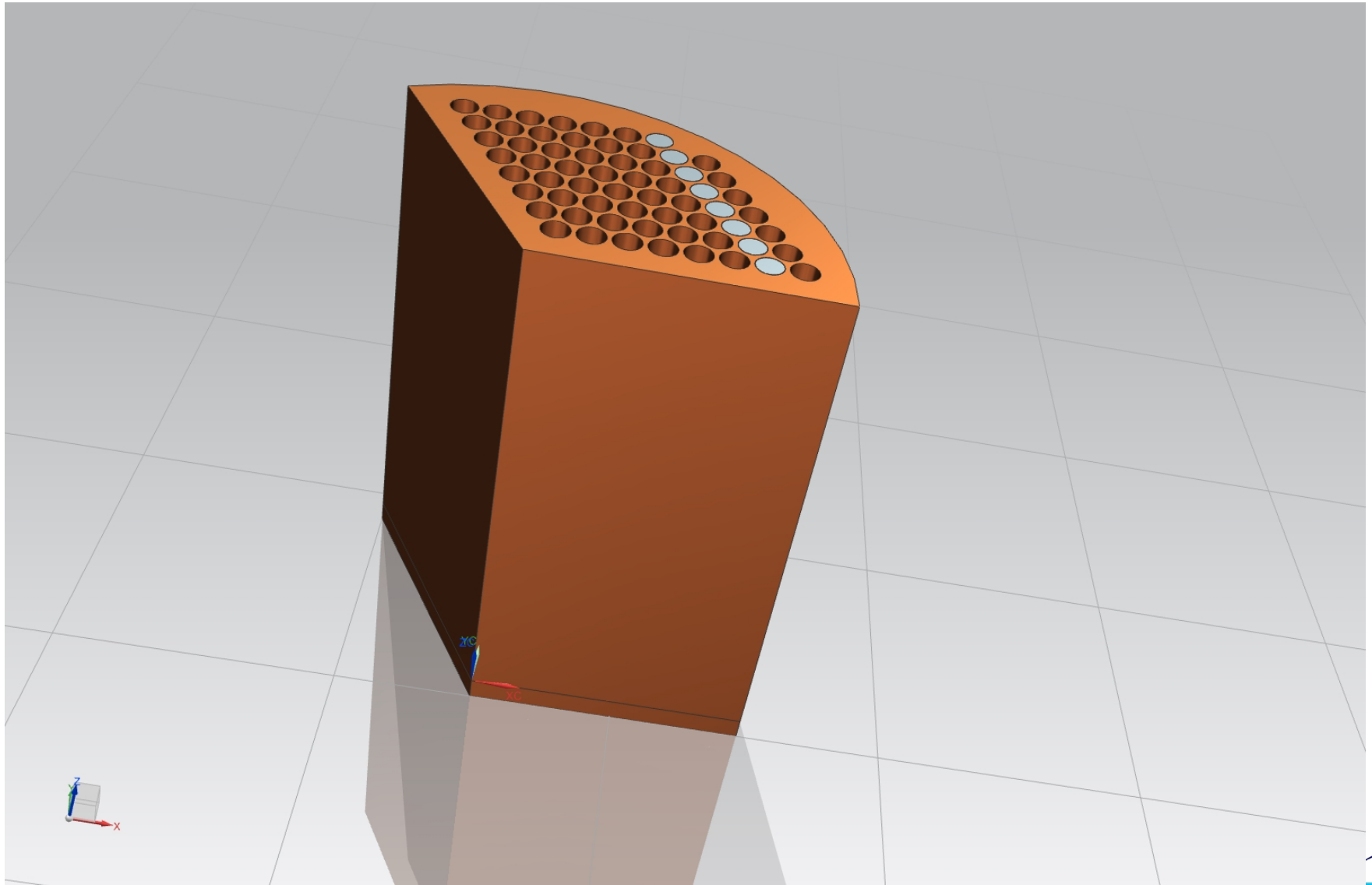
Diameter, height and number of rods will be decided from reactor activation simulation and mechanical constrains due to reactor activation channels size and Bx tunnel dimension. As soon as reactor simulations will deliver the suggested rod dimension we will provide the consequent mechanical design. (diameter > 10 mm, height = 200/250 mm)

This solution offer some important advantage:

1. Rods are solid, easy to be handled in reactor and during transportation
2. Less hazards for environment pollution
3. No more concern for chips sintering problem if $T > 700\text{ }^{\circ}\text{C}$
4. Better thermal conductivity of metallic Cr (factor 100)
5. More compact source design (smaller Tungsten container, less weight, smaller transport containers)



Solid rods



Solid rods

