PLEIADES

Smarter Plant Decommissioning

PLEIADES User story 1

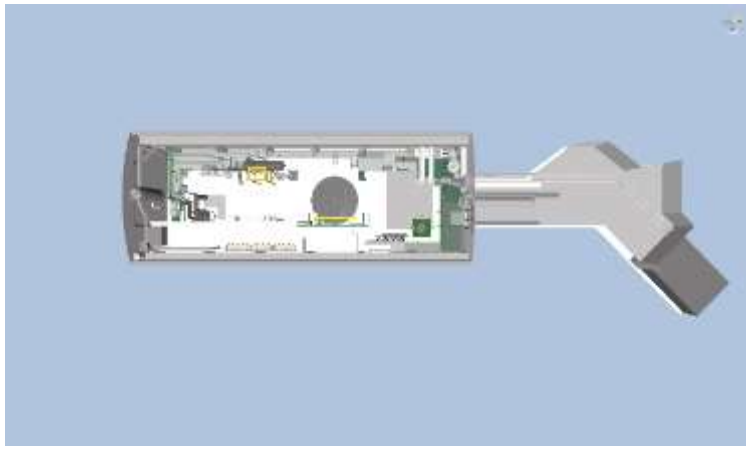
25.10.2023 John Einar Hulsund, IFE

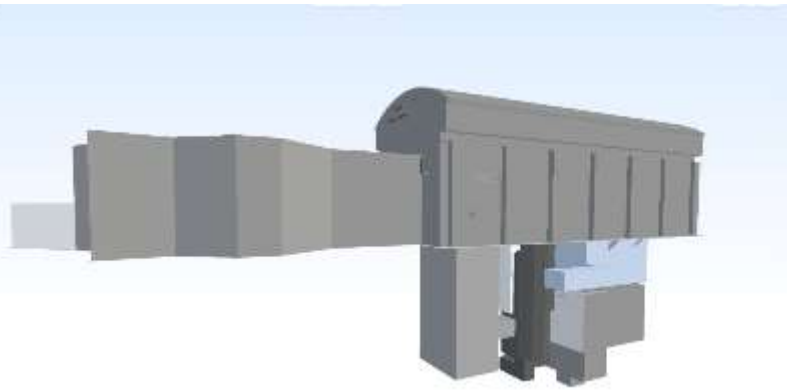
This project has received funding from the EURATOM Research & Training Programme 2014-2018 under the Grant Agreement n°899990. The content of this document reflects only the author's view. The European Commission is not responsible for any use that may be made of the information it contains.

User story #1 – Overview

Manual vs. Remote radiological characterization:

- Input 3D/BIM model: IFE model based on Halden research reactor hall model
- Input database: 3D/BIM model, radiological characterization data and equipment used, working groups with their cost factors for both alternatives, shielding plan, point cloud
- Expected outcome: Comparison of two alternative options in terms of ALARA and industrial risks. Identification of parameter with the highest impact on costs & schedule as a result of sensitivity analysis.





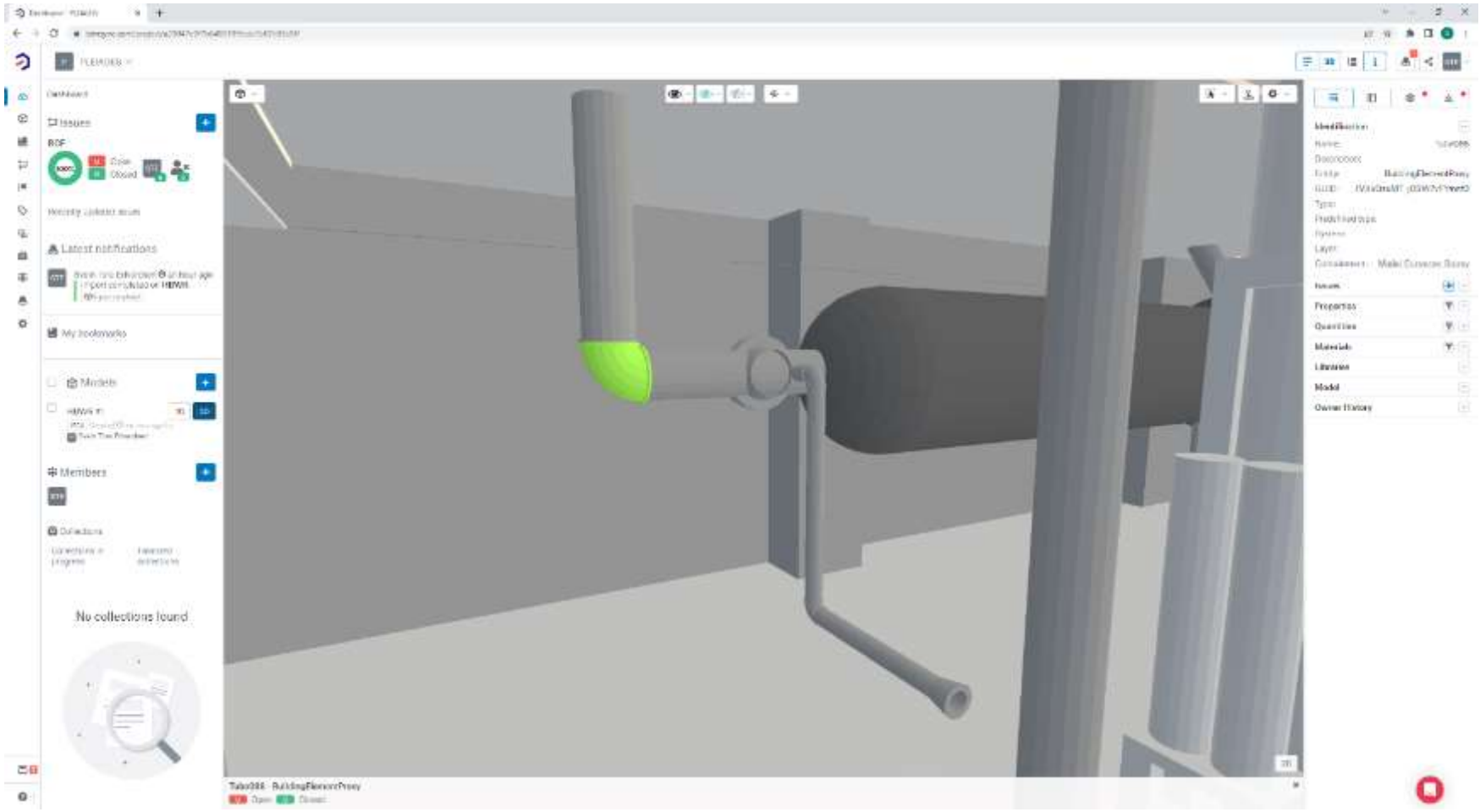
User story #1 – Test procedure

Manual vs. Remote radiological characterization:

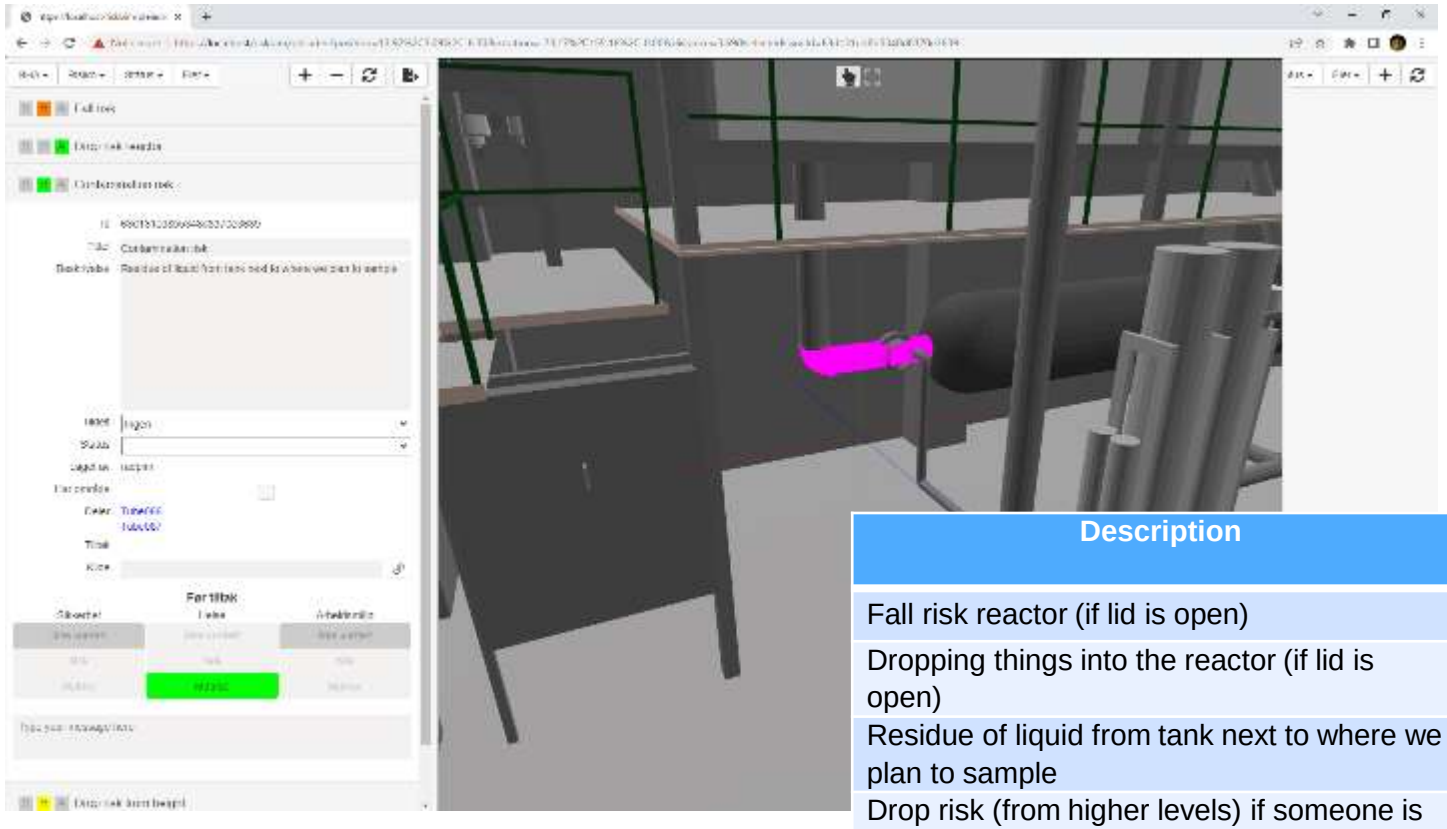
- Load 3D-data and radiation data from the BIM database
- Load work procedure, team and tools (VRdose /DEMplus®)
- Identify physical part to be characterized (BimSync)
- Identify risks (RiskBIM)
- Perform characterization task, record time and dose (VRdose/DEMplus®)
- Calculate dose uptake per worker (Vrdose/DEMplus®)
- Save data for time and dose in the database (VRdose)
- Assess cost, risk, time used and dose uptake (AquilaCosting)
- Decide preferred method

User story #1 – Identification of part in the IFC model

Identify GUID for component to characterize in BimSync



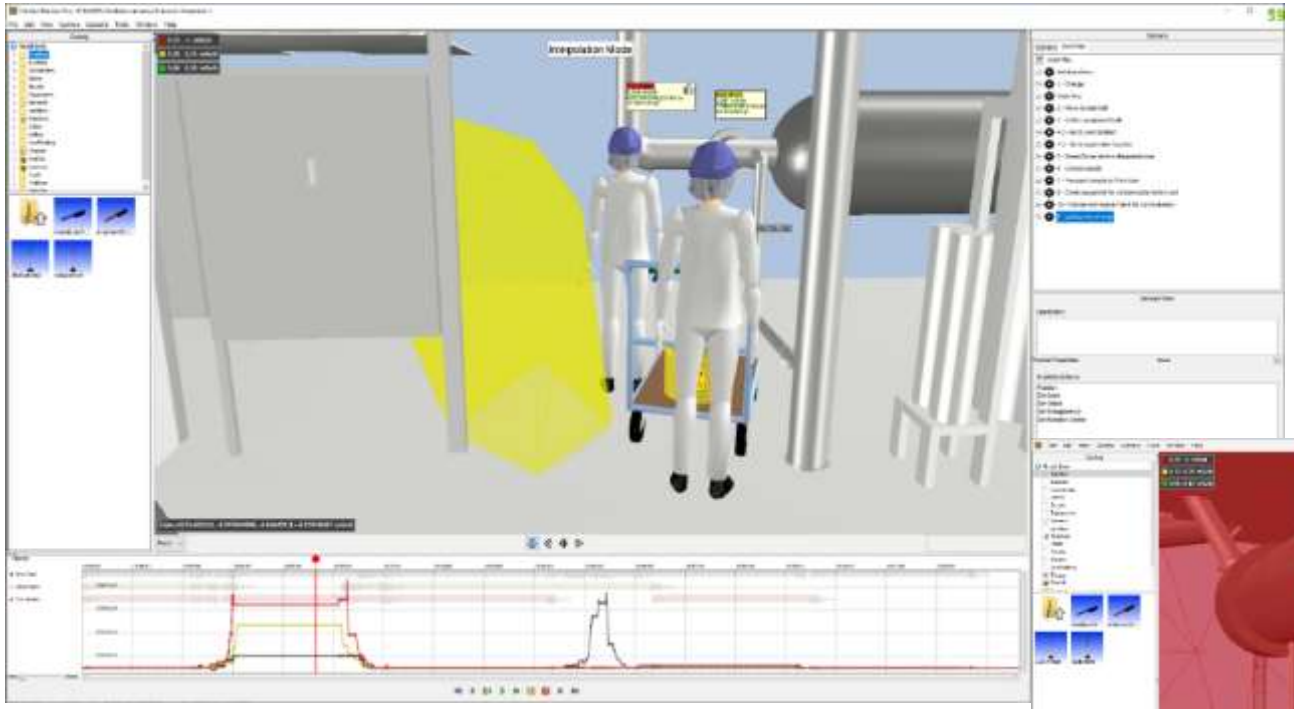
User story #1 – Identify risks in RiskBIM



Description	Type	Severity	Probability	Risk Level
Fall risk reactor (if lid is open)	Health	5	2	10
Dropping things into the reactor (if lid is open)	Operational	2	2	4
Residue of liquid from tank next to where we plan to sample	Operational	2	2	4
Drop risk (from higher levels) if someone is working there	Health	4	2	8
Robot hit elevated pipe and damage it	Operational	2	2	4
Robot falls into reactor tank if lid is open	Operational	3	3	9
Robot hit human workers	Health	1	2	2
Robot is hacked and controlled by others	Operational	2	2	4
Battery in the robot catch fire	Operational	3	1	3
Battery in the robot catch fire	Operational	3	1	3

User story #1 – Manual and remote characterization

Record dose uptake and time used for characterization in VRdose



User story #1 – Results

Manual vs. Remote radiological characterization:

- Cost differ with 2% manual vs. remote operation
- Remote scenario slightly in favor for cost, time, risk and dose uptake

Dose uptake, manual scenario

Dose uptake, remote scenario

Contact:

contact@pleiades-platform.eu

http://pleiades-platform.eu

@pleiades platform