

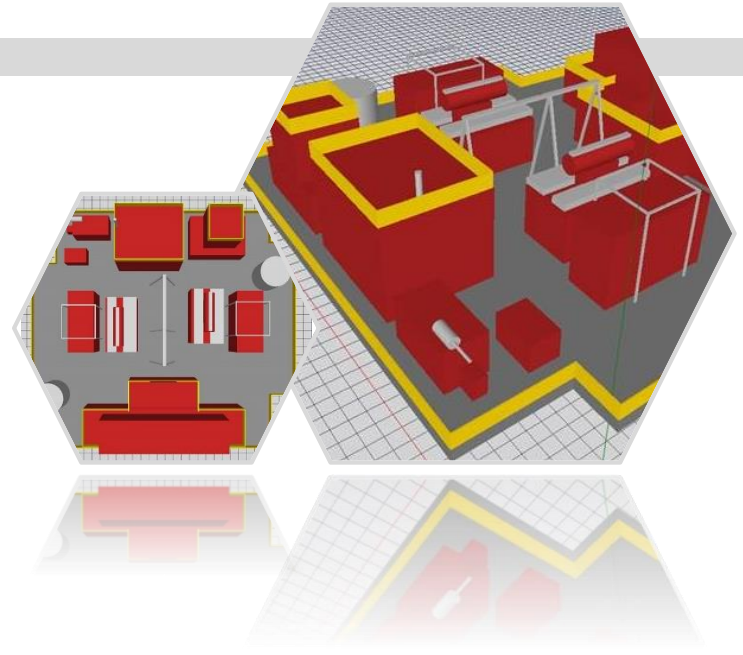
CASE STUDY

LIGHTNING PROTECTION DESIGN



PROJECT BRIEF

Earthing Risk Management was asked by E. ON to review the lightning protection system (LPS) design proposal for the Rampion Offshore Platform (designed by others) as there was concern over its suitability. Being an offshore installation, the platform was very exposed to lightning strikes.



CHALLENGES

This project presented several challenges, including:

- Accurately representing the complex 3D layout of the offshore platform on the lightning software, including exposed cables and pipework.
- Getting a full understanding of the platform construction so that parts of the platform that were self-protecting could be taken into account and used to significantly reduce the amount of formal lightning protection required.
- Protecting cables fitted to the exterior of the platform.
- Determining most efficient locations for additional lightning protection measures to achieve the required lightning protection level whilst being practical to install.

OUR APPROACH

ERM was provided with a 3D digital model of the offshore platform and details of the lightning protection design that had already been installed. A 3D model of the platform was constructed using specialist lightning protection software and a rolling sphere analysis was carried out to determine whether the existing lightning protection system provided adequate protection to the platform. The analysis showed that some structures and cable systems were still exposed to lightning strikes, so LPS components were added and tested in the model until a cost-effective design that gave full protection was achieved.

PROJECT OUTCOME / DELIVERABLES

- Accurate lightning protection model of the platform was created.
- Existing lightning protection system was shown to be insufficient.
- A low-cost solution, making the best use of existing natural protection (from surrounding structures) was devised and provided to the client.
- Client has confidence that structures and exposed, vulnerable cable systems are protected.