

Rothera Research Station



Rothera Research Station is the largest Antarctic research facility operated by the British Antarctic Survey (BAS).

The station operates all year, with over 100 scientists, meteorologists, engineers and support staff present in the summer months, reducing to a skeleton staff of only 22 in winter. The environment is extreme, with highly variable weather conditions throughout the year and winter temperatures frequently at -20°C or lower.

BAS went to the market seeking a solution at Rothera that could meet capacity demand with minimal interruption to treatment. EPS were appointed following a tender process co-ordinated for BAS by Crown Commercial Services.

The project was named DfMA Project of the Year at the 2020 Water Industry Awards.

The Challenges

- Enhance sludge dewatering performance
- Improve the means for handling bagged sludge
- Deliver a solution that could be installed by BAS staff
- Ensure quality and fit were pre-tested to minimise risk of re-work on-site

CASE STUDY

Rothera Research Station



The Delivery

The EPS solution proposed a Salsnes Filter primary belt filter system upstream of the existing SAF plant. It was found to be the most economically advantageous solution to meet the **key project requirements**.

EPS co-ordinated a collaborative and immersive design 'sprint' alongside BAS and Salsnes Filter teams, to create an integrated design within a short timeframe to keep the project on programme. A federated digital model was produced and this was reviewed remotely by relevant stakeholders using cloud hosting and remote meeting tools.

The entire filter/platform/access assembly was fully pre-assembled at the EPS factory, and was then factory inspected and tested in the presence of the BAS team including those who would supervise its installation at Rothera.

EPS and Salsnes worked together to provide a remote support role for BAS throughout the installation and commissioning process.

Project Requirements

- Demanding standards for treatment and sludge dewatering performance
- Extremely remote site location and prohibitive site re-work costs
- Limited resources, skills and tools on-site
- Space constraints and access challenges within the treatment building
- Challenges of shipping and off-loading
- Limited lifting equipment on-site
- Extreme environmental conditions
- Fixed and immovable deadline for shipping from the UK

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Innovative Solutions

The innovation on this project was the means by which it was developed and delivered to meet the specific demands of this challenging solution.

From the outset, EPS chose to use our digital design platform and an off-site delivery strategy under a Design for Manufacture & Assembly (DFMA) initiative to address specific challenges and de-risk the overall project.

The Rothera wastewater treatment building, existing assets and services within it, were surveyed in detail and a 3D model developed as a highly-reliable basis for design. As well as providing the basis for fabrication, the model of the solution was used for client engagement/approval, proof of modular installation, clash detection, interface planning and as an installation planning tool.

Digital/DFMA has a key role to play in the delivery of remote assets and is equally beneficial in the delivery of smaller scale assets, especially where there are disproportionate risk factors involved. By assessing and quantifying risks at each stage of the project using 'what if' scenarios and a virtual asset model, decision making and planning outcomes were significantly enhanced.

The Rothera project highlights the importance of the solution in maintaining treatment standards in such a pristine and sensitive environment, the dramatically increased risk arising from this remote and hostile site location and the communication and co-ordination challenges created from collaborative teams operating in different parts of the world.

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About EPS Group

EPS Group is a specialist wet infrastructure support services group of companies operating across the Republic of Ireland, the UK & globally. It is one of the few genuine end-to-end service providers in the global water sector.

Founded upon 51 years of experience, EPS has grown from a modest electrical and pumping services business into an innovative, product and service provider, now focused upon the water, wastewater and clean technology sectors.

EPS has invested significantly over the years to ensure that our processes, procedures and standards meet or exceed necessary benchmarks of best practice and statutory codes. This has culminated in the company being awarded a wide range of international standards & accreditations.



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