



Expert Review of Water and Wastewater Piping Supports

Case study

During commissioning of one of the client's new installations, a pressure test of one of the piping systems resulted in significant movement. This indicated that the piping supports had failed to meet design criteria. EASL were engaged by the client to assess a large number of installed pipework supports on other systems to either demonstrate sufficient integrity or advise on modifications required to ensure each individual support was fit-for-purpose. EASL provided a rapid response via a flexible mixed composition team to address the challenge to the timing of the start-up of the client's installation.

Background and methodology

EASL's expertise in pipework analysis and design, combined with experience in design substantiation resulted in EASL being awarded a contract to provide design assessment and modification services to a client involved in the construction of a wastewater treatment plant.

The client provided the existing design of a range of different supports, the associated loading extracted from pipe stress analysis software and an overview of the associated plant. Initially the task required the assessment of each of the

supports to design code BS EN 13480 to identify the suitability of the designs.

Supports identified not to meet the code requirements were considered further. Where it was judged that these supports could be demonstrated to be fit-for-purpose, further assessments were carried out. Modifications were developed for any designs where further analysis was not judged to be suitable. This approach enabled EASL to provide our services using the most economical solution on a support by support basis.

Time was a critical factor in this project as the client's installation was already at an advanced stage of commissioning. Our project manager quickly assembled a flexible team of engineers with different skill sets and experience levels to enable

EASL to meet the client's needs in a timely and cost-effective manner. EASL also had to work with a number of the client's other contract partners so throughout the project communication was vital.

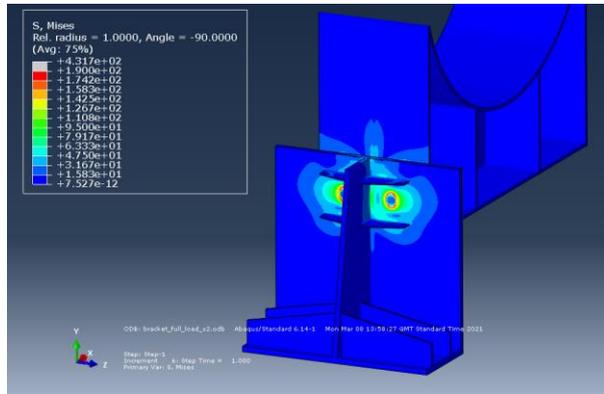


Figure 1 FE design of support bracket modification advised by EASL

There was a requirement for all proposed solutions to be able to fit within the existing plant arrangements, utilising primary steelwork already in place. Ideally a plant visit would have been undertaken but, due to restrictions imposed on travel (COVID) at this time, EASL successfully achieved this via review of drawings, photographs taken on-site and regular communication with the client and other contract partners. Calculations were undertaken to meet the requirements of design code BS EN 13480, and further analyses were carried out though the use of FE analysis where this was judged to be of benefit.

EASL provided on-going support to the client throughout the life-cycle of the project. This included providing advice regarding specific technical decisions required during the installation of the modifications, as well as further assessment and design services required for constantly emerging issues identified on plant not part of the original scope.

Outcome

As our client had a requirement to satisfy their client, the end user of the installation, that all modifications would ensure the long term integrity of the plant, a schedule of modifications individualised for each of the supports in scope, the associated calculations, and updated CAD drawings were generated by EASL. The design solutions were all presented in a format suitable for the client to make their design submittal.

Other applications

This project demonstrates EASL's capability to provide a rapid solution to a client's emerging needs via a mixed collaborative team. Furthermore, it shows EASL's commitment to clients throughout the project life-cycle, including the provision of support during the installation of a design solution. EASL always work with clients to identify cost effective solutions to operational challenges.

If you would like to discuss how EASL can help your business please get in touch.

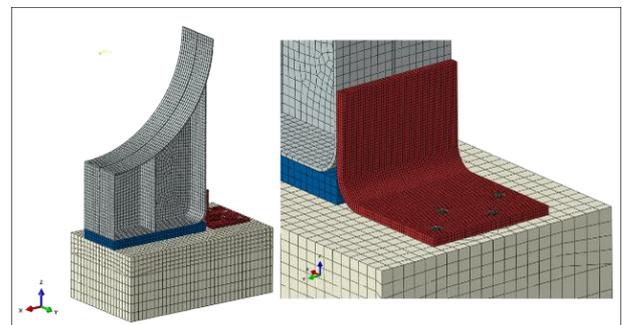


Figure 2 FE design of angle brackets

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