



Case Study

January 2011

Project: Civa modelling of the inspection of selected welds of an offshore mooring structure.

Problem: An inspection was planned to provide assurance the integrity of selected welds around nozzles (see Figure 1 for example) on an offshore mooring structure. Sonomatic were approached in order to determine whether weld flaws, with potential to impact on integrity, could be detected using automated ultrasonic inspection techniques from the exterior surface of the mooring.

Solution: In order to determine whether the flaws under consideration could be detected ultrasonically, models of the welds, based on information provided by the client, were created in the Civa software (an example is shown in Figure 2).

Flaws were placed at locations of interest within the weld and results were simulated using a selection of shear wave angled probes (Figure 3 shows the results from a single scan).

The results from the selected angled probes were compared in order to determine an inspection strategy that would provide the greatest probability of detection for the flaws under consideration.

Benefits: The analysis determined the inspection approach with the greatest likelihood of detecting each flaw without the need for constructing expensive inspection samples. The benefits of completing Civa analysis of a problem of this nature with Sonomatic are:

- Assurance of inspection methods without having to construct expensive samples;
- Accurate representation of the specific geometry under consideration;
- A variety of inspection techniques and flaw combinations can be investigated rapidly.
- Cost effective development of high integrity inspections.

Figure 1:

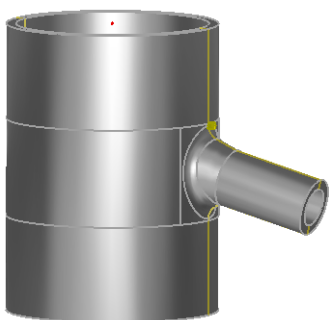


Figure 2:

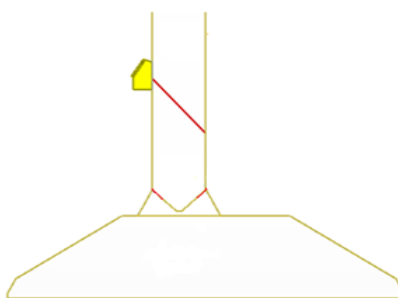


Figure 3:

