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SAMPLE STORY SUBMISSION SHORT FORM

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STORY DESCRIPTION

CAEPipe is a valuable tool for piping flexibility and stress analysis, but may also be used in ways that other piping tools on the market cannot. To upgrade existing coal fired power plants with the latest SO₂ scrubbing technology, there has been a large demand for scrubbers constructed out of Fiber Reinforced Plastic (FRP). These scrubbers exceed 100 feet in diameter and include a series of decks held up by FRP beams and columns.

For detailed design, Finite Element Analysis is traditionally used to review the stress and deflection of the scrubber components. However, the time and resources required to develop an FEA is not practical for determining member sizes for the bid. Hand calculations have been employed in the past, but entire rewrites are necessary to adapt to different geometry and boundary conditions.

CAEPipe provides the perfect solution. A spreadsheet was assembled to evaluate the worst load combination for each level and a beam model was quickly constructed in CAEPipe. The spreadsheet based input and replication tools sped the modeling process, allowing plenty of time to experiment with different loading and support scenarios. Finally, the forces and moments from the CAEPipe results were extracted and used to determine beam and column stresses.

Using CAEPipe to model the structure cut the engineering time from weeks to days, eliminated the high cost and lead time associated with FEA, and provided a “close enough” design for the estimating department to use.

