

2nd Quarterly Report – Public Page

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Progresses to date:

Extensive analytical stress analyses and FEM modeling have been carried out to study the thermal residual stress in the multi-layer external pipeline coatings. The analytical results based on the assumed material properties revealed that the thermally induced residual stresses would be independent of the coating film thicknesses. On the contrary, FEM results suggest that coating thickness is a critical factor that may cause delamination of the coatings for both the thin steel strip coating case and steel pipe coating case. The limited experimental results support the FEM findings.

Additional experimental work on the measurement of residual stresses on polyethylene and fused bonding epoxy coatings is underway to validate the FEM findings.

