leads to the section being overstressed and decreases the overall performance level of the pile structure.

## IV. Conclusions

A field investigation and structural performance analysis of a ship lift hoist pile structure exposed to the marine environment were performed in this study. This study focused on analyzing the structural performance of the steel pile of the ship lift hoist structure against gravity and seismic load. Based on the field investigation result, it was found that the steel pile of the hoist structure suffers from corrosion. The thickness of the pile structure also reduces due to corrosion. The thickness loss of each pile varied from 0 to 1.9 mm. The half-cell potential on the pile cap also showed that the corrosion potential in several hoist pile structure is very high. Besides performing field investigation, a structural performance analysis was also performed for the hoist structure using the measured thickness from the field investigation. The structural performance analysis shows that the hoist pile structure is at a safe limit against gravity load when receiving a maximum ship load of 1,650 tons. However, when the gravity load is combined with seismic load, the analysis result shows that the steel pile structure is overstressed and cannot withstand the applied load.

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