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Thickness Gauging using Ultrasonics for ISI - FBTR Experience

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Abstract

Emergency power supply for essential loads of Fast Breeder Test Reactor is provided by two Diesel Generators (DG) each rated for 1MVA. Two air receivers, at 30 kg/cm² pressure, are used for starting each DG set. Preventive maintenance is carried out on the air receivers once in two years to find the condition and it includes cleaning, inspection of internal & external surfaces, wall thickness measurement, application of linseed oil to prevent corrosion.

Thickness measurement using ultrasonics is used to infer any change in the thickness of the air receivers due to corrosion during service. Measurement is carried out at various points randomly covering the entire surface. During one such inspection, thickness values in the dished end portion of one of the receivers were found to be less than the normal value at few locations. To find out the nature and extent of the defect at those locations, checking was carried out using ultrasonic flaw detector. The indications were 'spots of inclusion or segregations ' which are acceptable. Also no corrosion indications were observed.

This paper details the experience and our observations and analysis during the inspection of air receivers of DG sets.