Plant Avoids Shutdowns, Saves $2.6 Million and 4320 Man-hours Using Emerson™ Smart Wireless

RESULTS
• Avoided four shutdowns over four years
• Saved $2.6 million in production loss
• Avoided safety and environmental incidents
• Saved 4,320 man-hours in clean-up

APPLICATION
Measure critical reactor temperatures to avoid agglomeration causing shutdown in Linear Low Density Polyethylene (LLDPE) plant

CHALLENGE
An LLDPE plant in India polymerizes ethylene in a fluidized bed reactor. Unfortunately, profile temperatures around critical zones of two 34-meter high reactors could not be made with conventional wiring due to the dense infrastructure surrounding the reactors. Temperature is critical to the polymerization process, and the plant was challenged by agglomerate formation which occurred when fluidization temperatures fluctuated abnormally. When temperature is not properly controlled, lumps form on the inside of reactor walls and downstream equipment, resulting in increased downtime or plant shutdown, production loss, and risk of safety and environmental incidents.

SOLUTION
The plant used Emerson’s Smart Wireless solution to profile temperatures around the critical zones of both 34-meter high fluidized bed reactors. The wireless predictive monitoring avoided plant shutdowns by providing early detection of abnormal temperature fluctuations and deviation alarms to assist in following standard operating procedures. Four shutdowns have been prevented in the first four years of operation, avoiding production loss and an estimated 4,320 man-hours to clear agglomerate and restart operations.

This was the first wireless installation and has helped gain immense confidence in the technology. It has served as a reference to other sites where refinery and tank farm applications are currently being considered and implemented.
Four shutdowns have been prevented in the first four years of operation.