

HRSG Harp Replacement Engineering & Heavy Lift Support System for Gas-Fired Power Plant

Description

Industry: Energy & Power (Gas-Fired) | **Service:** Lift Planning & Rigging Engineering, Structural & Mechanical Engineering

The Challenge

HRSG units are designed for approximately 20 years of service life, during which the harp tubes are exposed to high temperatures and corrosive conditions that cause leaking and efficiency loss. At this gas-fired power plant, six large HRSG harps with individual weights of up to 251,000 pounds required replacement through the side of the existing heat recovery steam generator. A complete lifting, tracking, and crane-handoff system had to be engineered within the confines of the existing structure.

The Solution

DSE designed a cantilevered track system extending from inside the HRSG unit to a point within reach of an external crane. The tracks for the four machine skates were supported on cantilevered extensions of the existing I-shaped plate girders.

Because the tracks loaded these girders eccentrically, significant torsional forces were introduced that the original girder sections could not resist. DSE resolved this by adding plate to create a built-up hollow structural section on one half of each I-shaped plate girder, substantially increasing its torsional capacity without requiring full girder replacement.

The cantilevered support extensions were designed to carry the full harp weight while positioning each harp within the crane's reach for final removal.

Result

All six harps were successfully removed and replaced. DSE's torsional reinforcement solution allowed the existing structure to be utilized rather than replaced, reducing cost and outage duration. The extended HRSG service life provides continued efficient power generation at the facility.

Contact DSE to discuss heavy lift engineering and HRSG maintenance support.

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Author

marcdossantos

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