



DESTRESSING CASE STUDY

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CHALLENGE

To maintain track integrity, worn ties need to be replaced. A Class I railroad was planning several high density tie replacement programs on mainline track, that had continuously welded rail (CWR). Over an extended period of time, CWR rail elongates due to the forces imparted on the track by moving trains and heat added by friction and the ambient temperature.

These compressive forces can cause problems during the tie exchange process. Rail is restrained with anchors to eliminate longitudinal movement, while ballast shoulders and spikes provide end bearing strength to the tie. During high density tie replacement programs, where greater than 30% of the ties are exchanged, anchors, spikes, and ties are removed, which in turn reduces the rail's restraint, which can lead to thermal misalignments.

SOLUTION

Holland utilized a mobile flash-butt welding truck and specialized 160 ton rail puller. Holland was tasked with tensioning the rail before the loss of horizontal restraint occurring through the tie replacement process. Compressive forces were minimized by cutting the rail section and then stretching the rail section to neutral forces. This is completed by utilizing the neutral rail temperature formula. A flash-butt weld is then made; once cooling of the weld occurs, rail pulling ceases and the rail is re-anchored. The railroad then proceeds with the tie exchange.

Holland supported nine gangs on the Class I railroad, with one gang supported by a Holland turn-key crew.

