



# Steam to Hot Oil Heating Conversion: A Multi-Faceted Mechanical Project

Excavation, mechanical, and insulation project improves plant productivity



Representative photo only. By agreement with our customer, we will not disclose details of the project or publish any actual photographs of the plant.

### Project Description

Purpose of the project was to convert a plastics production process supported by steam to one in which hot oil was used as the heating method. Hot oil was determined as a more effective and consistent method for heating raw materials, and would result in plant production improvements.

The project started with ground excavation and laying a 60 ft. by 60 ft. concrete pad. On the pad, the Waco team placed and integrated the following components

- Hot oil was determined to be a more effective and consistent method for heating raw materials,
- The integrated system moved hot oil, and high and low pressure steam; and contained air, nitrogen, chilled water...
- Consequently, the Waco team had to closely coordinate all activities with plant and safety personnel to avoid interruptions in the production process and maintain compliance with safety requirements.
- This particular plant's safety record was # 1 worldwide.

The integrated system moved hot oil, and high and low pressure steam; and contained air, nitrogen, chill water and recirculating water lines. Due to the emphasis on plant safety, 10% random sample of pipe welds were X-rayed with 100% success. Also, piping was tested to 950 psi with no leaks.

### Unique Project Challenges

- 1 This particular customer had a very strong emphasis on safety, and this particular plant had their #1 safety program worldwide. The safety requirements caused the Waco team to follow exceptional safety routines and procedures, which required some additional safety manpower, including daily safety meetings in which all planned work and methods were reviewed for compliance.
- 2 The project, most of which occurred outside, was performed during the winter and early-spring months. This presented scheduling challenges with regard to laying the concrete pad. Pouring the concrete had to wait days for proper soil conditions. The weather also impacted the installation of the piping and equipment. Harsh winter weather conditions were mitigated by renting an off-site building in which all fabrication work was done.
- 3 The plant was located in a remote area away from materials suppliers. Materials management and delivery had to be planned precisely and well ahead of time in order to ensure materials were delivered and project was completed on time.
- 4 Operations at the plant continued 24/7 during the project. Consequently, the Waco team had to closely coordinate all activities with plant and safety personnel to avoid interruptions in the production process and compliance with safety requirements.

### Project Scale

- 25,000 man hours over a 6-month period
- 15,000 linear feet of piping (various sizes) of which 8,500 linear feet were insulated
- 330 yds. of concrete for the pad

### Why Waco Inc. was Chosen for the Project – Prior experience, project coordination and the best project value

Waco and the manufacturing company had worked together previously on projects at other plants. They were convinced that Waco had the manpower and project management capabilities to complete the job on time without interrupting the plant production process. Even though Waco was not the lowest bidder on the project, the manufacturing firm felt Waco provided the best value of the bidding companies.

### Summary of Results

Russ Ricketts was Waco's project manager. The project was completed on the customer's timeline and within their budget. No work related injuries occurred. The new hot oil heating system worked so well, the customer reported a 25% production increase in the first week after project completion.

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### Other Locations

