

Furnace Tube Rupture and Fire at Marathon Martinez Renewables Facility

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Furnace Tube Rupture and Fire at Marathon Martinez Renewables Facility

Martinez, California | Incident Date: November 19, 2023 | No. 2024-01-I-CA

Investigation Update

February 2024

On November 19, 2023, at approximately 12:21 a.m., a metal tube ruptured within a reactor charge furnace during a unit startup at the Martinez Renewables facility in Martinez, California. The ruptured tube released renewable diesel and hydrogen, resulting in a fire that seriously injured one Marathon employee (Figure 1). This document provides an update on the ongoing CSB investigation of this incident.

Background Information

- The Martinez Renewables facility is a 50/50 joint partnership between Marathon Petroleum ("Marathon") and Neste,^a operated by a subsidiary^b of Marathon [1]. The facility previously operated as a petroleum refinery for more than 100 years under various owners until 2020, when Marathon ceased production at the site. Marathon converted the site to a renewable fuels facility, which began production in early 2023 with plans to increase operation to full design capacity by the end of 2023 [2].
- Renewable diesel and hydrogen were released during the incident. Renewable diesel, a biomass-based diesel made from plant oils and animal fats [3, 4], is a flammable liquid with a flash point ranging between 135-168 °F [5]. Hydrogen is a colorless, odorless, highly flammable gas [6].



Figure 1. Surveillance footage of furnace fire. (Credit: Marathon)

^a Neste is a renewable diesel and sustainable fuel supplier headquartered in Espoo, Finland [9, 10].

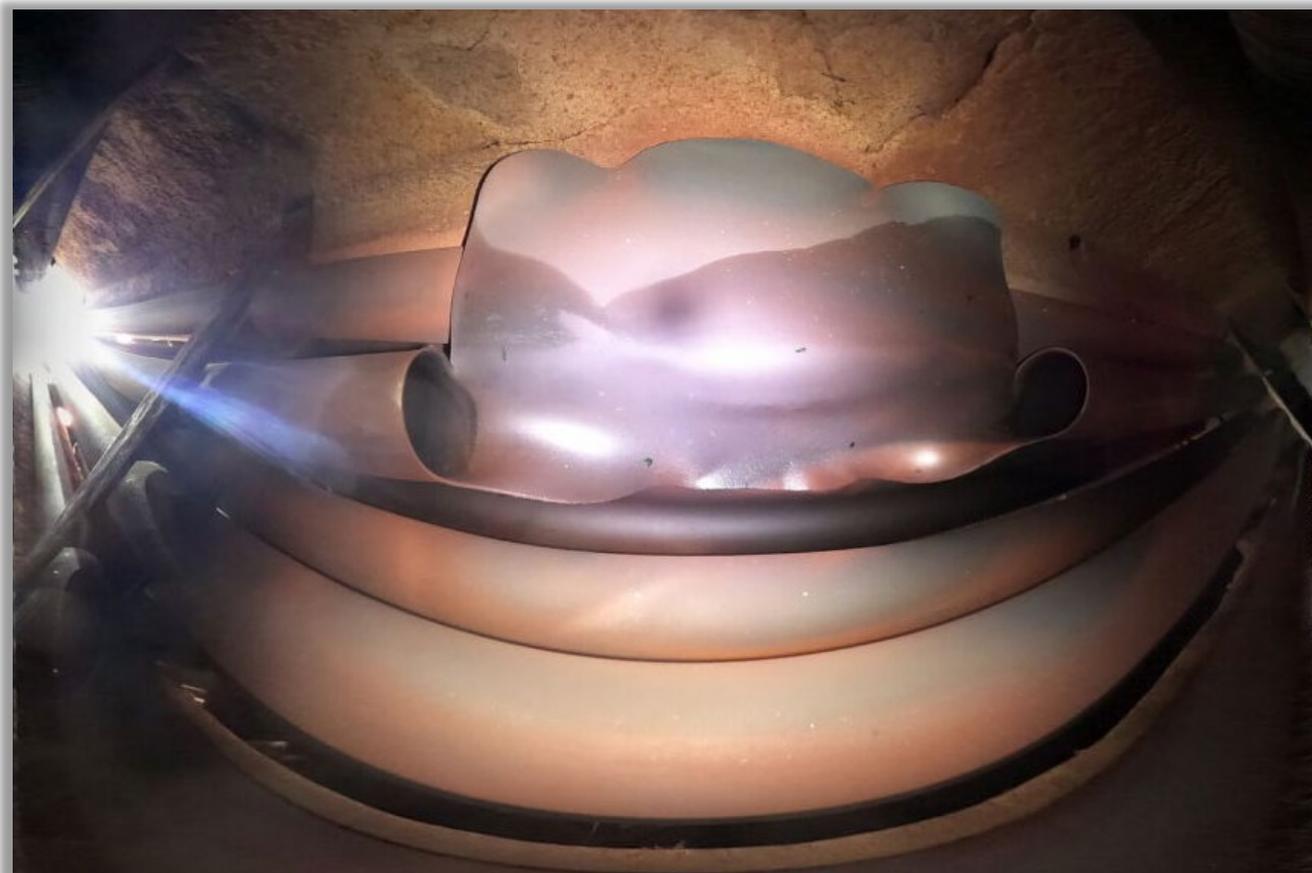
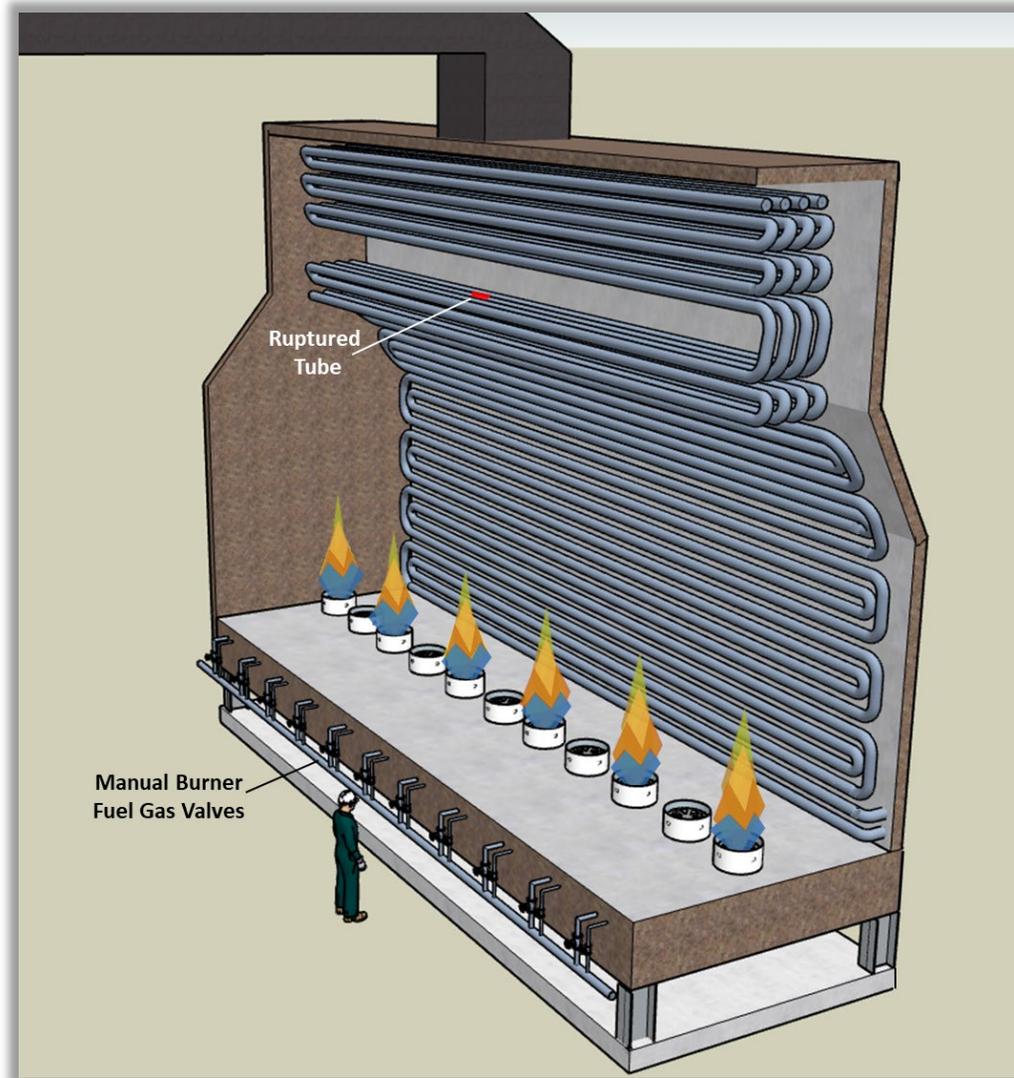
^b The Martinez Renewables facility is operated by Tesoro Refining & Marketing Company LLC, a subsidiary of Marathon [11].

- November 19, 2023, 12:21 a.m.
- Furnace tube ruptured and fire erupted during a unit's initial startup
- Operator standing next to furnace seriously injured
- Renewables facility recently converted from petroleum refinery

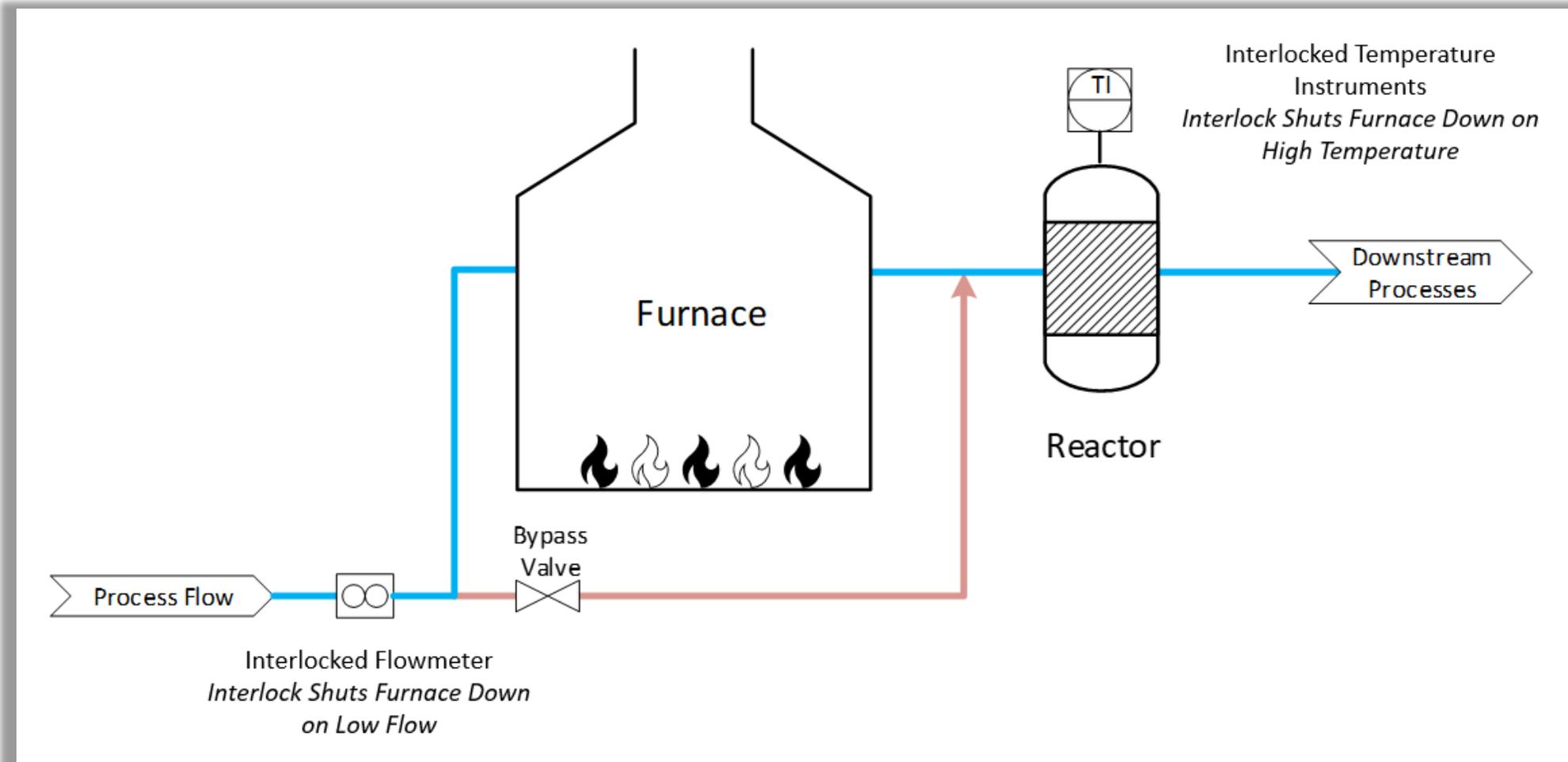
Investigation update available on the
CSB website:

www.csb.gov

Furnace Tube Rupture



Simplified Process Overview



Post-incident, a normally closed manual bypass valve was found open, creating a potential flow path around the furnace.

The CSB is continuing to gather facts and analyze several key areas, including:

- Ongoing inspection of furnace internal components
- Furnace tube metallurgy and failure mode analysis
- Identification and control of potentially hazardous scenarios
- Relevant facility, corporate, and industry standards

The investigation is ongoing. Complete findings, analyses, and recommendations, if appropriate, will be detailed in the CSB's final investigation report.