



General Iron Explosion Investigation and Next Steps

Overview

In May 2020, explosions occurred at the General Iron recycling facility. Following a report and investigation commissioned by RMG, the owner and operator of General Iron, the City of Chicago took the necessary steps to review the findings, provide full transparency to what occurred, and ensure that necessary controls recommend in the report have been implemented at the facility.

Context

On Monday, May 18, 2020 two explosions occurred at the General Iron recycling facility, located at 1909 N. Clifton, in the Lincoln Park neighborhood. The facility, owned and operated by Reserve Management Group (RMG), specializes in the scrapping and recycling of metals, including appliances and end-of-life vehicles. Observers of the explosions saw a jet of flame, followed by an explosion and a plume of smoke, coming from the area near the company's Regenerative Thermal Oxidizer (RTO). The RTO is a pollution control device that the operator installed to control volatile organic compounds (VOCs). The RTO is connected to RMG's metal shredding equipment.

Following the explosions, the Chicago Fire Department (CFD), the Department of Buildings (DOB) and the Chicago Department of Public Health (CDPH) deployed inspectors to assess the scene. The CFD Hazmat unit took initial readings for VOCs and other pollutants and found they were within normal range and did not pose a health risk to workers and nearby residents. CDPH inspectors issued two citations based on the explosions. Following their reviews, DOB and CFD issued a joint emergency closure order, citing hazardous conditions. The order was subsequently amended to permit RMG to receive, sort, package and remove accumulated recycled materials at the site, but the prohibition on shredding remained in place.

As a result of the explosions, both RMG and the City retained experts to assess the cause and make recommendations to ensure that appropriate safety measures are put in place to prevent an explosion in the future.

Exponent Investigation

RMG hired the consulting group Exponent to conduct a root cause analysis and to provide recommendations to prevent reoccurrence of a similar incident in the future. Key findings of the Exponent Report include:

- The investigation of the source of the explosion indicated that source of the ignition was the RTO



- The investigation ruled out methane, used in the operation of the RTO, as the source of the explosion
- The investigation indicated that flammable gas likely was accepted into the shredder and caused the explosion in the RTO
- Exponent recommended engineering and administrative controls to reduce the recurrence of a future incident including:
 - Installation of a combustible gas monitor near the shredder
 - Installation of a bypass vent near the RTO
 - Posting of additional signage and additional efforts to communicate to customers the requirement to remove gas containers from vehicles and equipment

Review of Findings

To review the findings of the Exponent group, The City of Chicago hired Project Performance Group (PPG), a technical consultant specializing in root cause analysis. PPG monitored Exponent's work, reviewed Exponent's findings and report and conducted its own independent fact-finding. Additionally, PPG conducted a follow-up site inspection to determine whether Exponent's corrective recommendations have been satisfactorily implemented. Highlights from the findings following PPG's investigation include:

- Confirmation of Exponent's finding that the cause of the explosion was likely the release of a flammable gas in the shredder
- Confirmation that the mechanical and administrative controls recommended by Exponent are the appropriate recommendations to prevent reoccurrence
- Confirmation that RMG has implemented the appropriate controls at the General Iron facility to prevent a recurrence, and a conclusion that there is no operational reason to object to a resumption of shredding operations.

Next Steps

Once CFD, DOB and CDPH have had an opportunity to assess the reports and conduct a site inspection, they will determine whether the conditions that gave rise to the closure order have been corrected in accordance with the reports' recommendations, and whether RMG is in compliance with their permit conditions. Additionally, inspectors will assess whether recommendations to prevent future incidents, contained in the Exponent report and the Project Performance Group's review of it, have been properly implemented at the facility. If so, DOB, and CFD, coordinating with CDPH, will lift the closure order and allow the permittee to resume operations, in conformity with those permits and applicable law.