

WRRF Incineration (N-Belt) Fire

October 28, 2020

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N-Belt Fire

Extent of Damage



The Fire Incident

*** No injuries was experienced ***

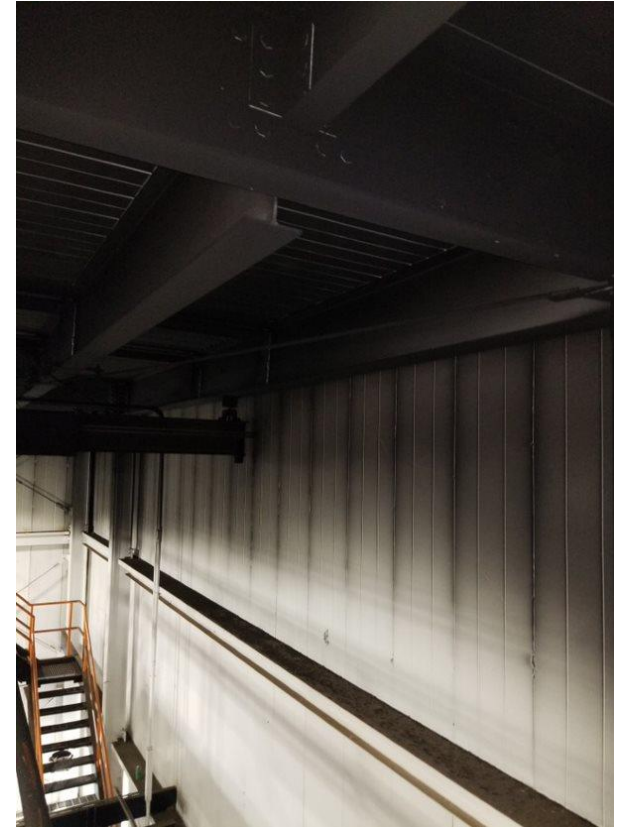
- At approximately midnight the Operation Team placed conveyor system in standby for routine cleaning.
- At approximately 1:00 a.m. on September 20,2020 the team detected smoke and fire within the incinerator building.
- The Team Members safely evacuated the building and contacted Detroit Fire Department (DFD)
- All emergency response equipment on site including fire alarm, standpipe, fire pumps, was functional and worked as designed.



Along the N-belt



Above the Hopper



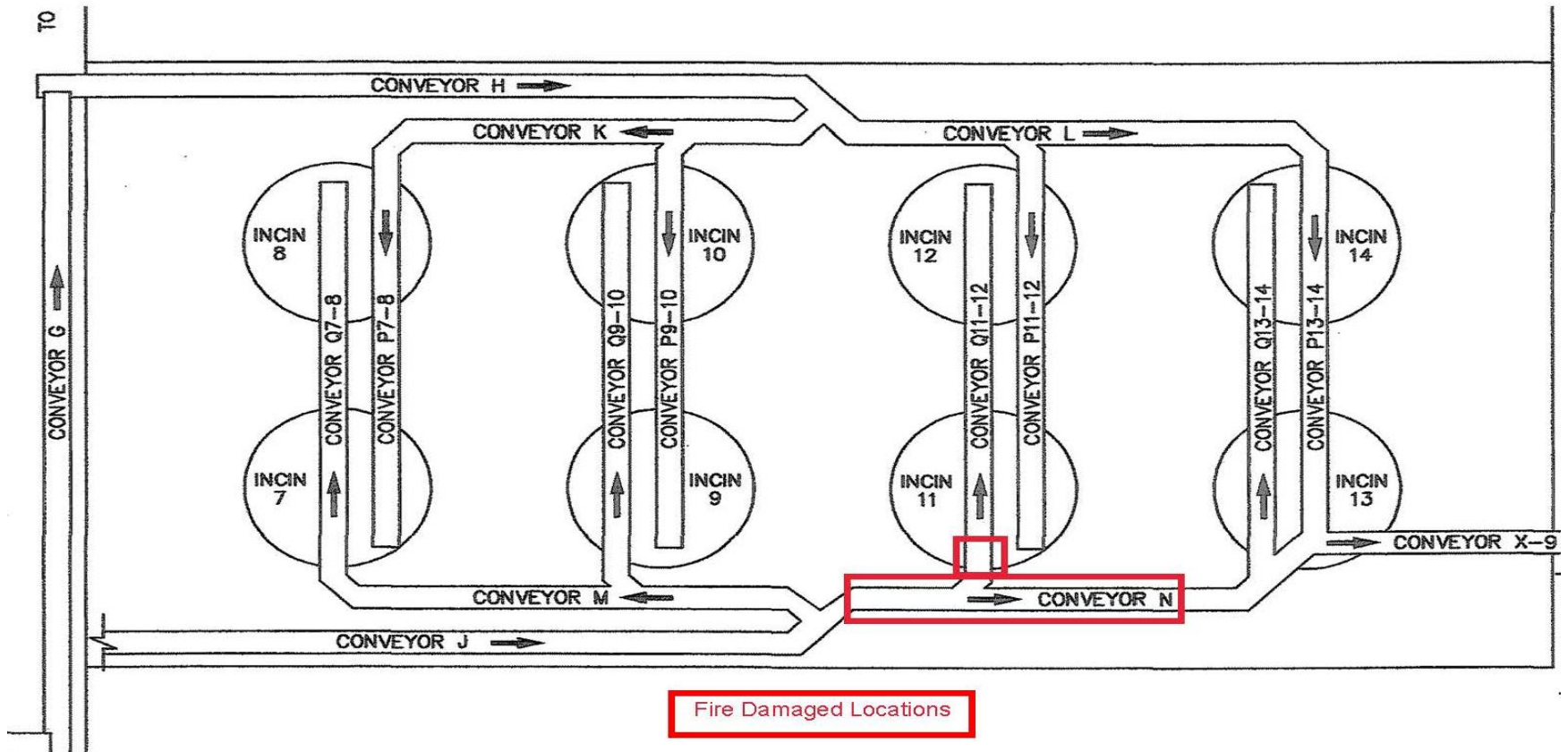
Soot on Ceiling

N-Belt Fire

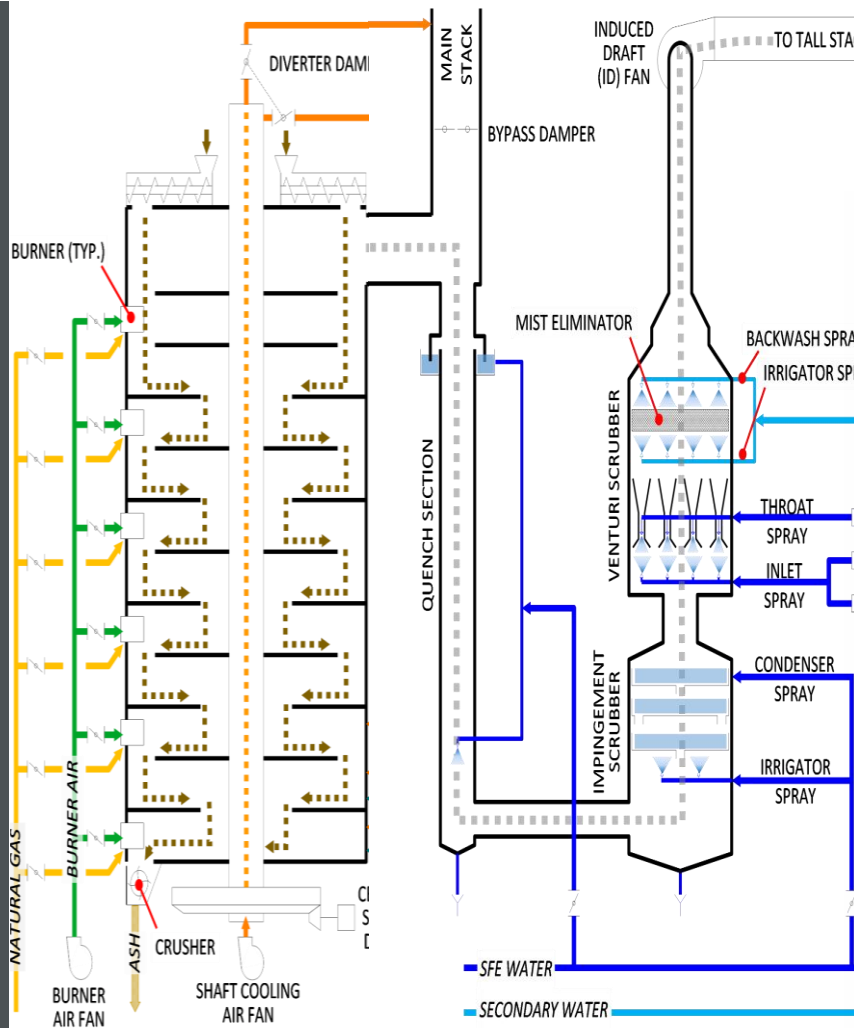
Incineration Process

*Sludge Cake to Ash –
Volume Reduction*

Conveyance System



Incineration Process



- Dewatered sludge cake is conveyed to the 5th Floor and directed to 2 screw feeders on top of an incinerator
- The screw feeders move the sludge cake to openings near the incinerator's outer wall
- The cake falls through openings in the top two hearths directly to Hearth 3
- Rabble arms with plows move the sludge inward or outward to center or to perimeter drop-holes, where the sludge falls to the next hearth
- This process is repeated in all the subsequent hearths until the sludge reaches the bottom hearth
- As the sludge moves through the hearths, it is dried, burned to ash, and the ash is cooled
- Volume of sludge is reduced by 60-75% when it is burnt to ash

Possible Causes

*Determined factors
by experts*



Probable Causes

At this time, neither the Detroit Fire Department or Insurance Investigators have determined a probable cause for the fire.

GLWA is considering retaining an expert in fire origins and causation to help determine a probable cause for this incident and assist GLWA in determining whether possible improvements could be made to better protect against the risk of future fires.

Remediation Plan

Plan for Recovery



Remediation Plan

Phase 1 – Investigation - Complete

- Insurance clearance/coordination before any restoration
- Status of Cause & Origin investigation.
- Set up Engineering and General Contractor contracts
- Order all Equipment Parts with Long Lead Times
- Recovery organization – progress meetings, communication, progress reports, documentation, etc.

Phase 2 – Restore Operations – On schedule

- Repair N and Q11/12 Conveyors
- Investigate Electrical Conduits and Wiring for Potential Damage
- Test Nearby Conveyors to Verify Operational Status
- Initial schedule, constraints and next steps

Phase 3 – Repair other damage - development of work scope

- Cleaning and Painting of Walls and Ceiling
- Deeper Inspection of Potential Structural/Insulation/Roof Damage

Phase 4 –Future events prevention and betterments

- Explore use of Infrared Cameras to Detect Hot Spots

WRRF Operations Update

*Strategy during recovery
period*



WRRF Operations Strategy

Close monitoring of the facilities solids inventory, maintain a very low inventory.

Maximize the use of Biosolids Dryer Facility (BDF) at 316 dry tons per day(dtpd) until the repairs are completed at incineration. The production can be adjusted to less than 316 dtpd if one of the following two conditions exist:

1. The pumping rate at Complex-B (Secondary sludge) reached its max. limit, or
2. If unable to meet the BDF blend % dry solids in the range of 2.5% to 6.0%

Place Central Offloading Facility in service:

1. During and after wet weather
2. During dry weather if the total inventory reaches to 500 dry tons mark

If the sludge blanket depths fall below 10 feet in the gravity thickeners, put one thickener on stand-by, so that the in-service thickener depths will rise to optimal level

Summary

- The fire occurred on Sunday September 20th at 1 a.m.
- All the emergency response equipment operated as designed
- GLWA Operations, Maintenance and Engineering Team quickly sprung to action:
 - Operations: Revised our operational strategy to maximize the use of the Biosolids Dryer facility with as-needed use of landfill disposal.
 - Maintenance: Championed the Phase I restoration with the use of our Job Order Contracting Services and GLWA team members.
 - Engineering: Assist in establishing needed contracts, while working on the development of the long-term restoration plan for the building.

Despite this process disruption no sludge was discharged, and the facility continue to treat and discharge effluent of unquestionable quality.

THANK YOU!



GLWA

Great Lakes Water Authority

One Water. One Team.