# Case Study: Carlstar Tire Plant – Clinton, TN

Project Date: January 16, 2021

Location: Carlstar Tire Plant, Clinton, Tennessee

Client: Lloyds of London

## Project Overview

Our disaster response unit was dispatched to Clinton, TN, where Carlstar Tire Manufacturers experienced a fire incident. A process machine ignited, causing flames to spread to a dust collector, leading to widespread smoke and fire damage within the facility.

## Challenges & Unique Approach

- The tire plant needed to remain operational during the remediation process.  
- Traditional man lifts were impractical due to production constraints and space limitations.  
- Smoke and carbon black contamination were continuously being produced by plant operations.  
- Ensuring compliance with IICRC standards for air quality and contamination control.

## Innovative Solutions & Execution

1. Scaffolding Instead of Man Lifts   
 - To maintain plant operations, we scaffolded the entire roof instead of using man lifts. This allowed for efficient remediation without disrupting production.  
  
2. Hourly Atmospheric Testing & Containment Strategy   
 - Routine air quality monitoring revealed that carbon black contamination levels were exceeding our cleaning capacity in a 12-hour shift.   
 - To address this, we designed and implemented a Negative Air Enclosure, a containment system that isolated affected areas and maintained negative air pressure to prevent further contamination.  
  
3. Compliance with IICRC Air Change Standards   
 - The IICRC standard for pollutant containment requires four air changes per hour in a negative air enclosure.   
 - Our system achieved eight air changes per hour, doubling the recommended standard and ensuring maximum air purification.  
  
4. Deployment of High-Capacity Air Scrubbers & Filtration Management   
 - We utilized as many 2,000 CFM air scrubbers as possible, changing filters hourly due to rapid contamination.   
 - This high-frequency filter replacement ensured that particulate matter was continuously removed from the air.  
  
5. Vacuum Truck Integration & Pressure Washing   
 - We connected vacuum truck intakes directly to the exhaust fans, pulling contaminants out of the facility.   
 - Pressure washing was conducted systematically, with ceilings being cleaned to an "air sample clean" standard, ensuring complete decontamination.

## Results & Impact

- The plant remained fully operational throughout the remediation process.  
- Our Negative Air Enclosure system successfully minimized airborne contamination, allowing for safer and more effective cleaning.  
- The doubling of IICRC air change requirements ensured optimal air quality control.  
- The combination of air scrubbing, vacuum extraction, and pressure washing ensured that all affected areas were restored to pre-loss conditions.  
- Air quality testing confirmed that the facility met post-remediation safety standards before project completion.

## Conclusion

The Carlstar Tire Plant project demonstrated the importance of innovation in large-scale industrial restoration. By implementing a strategic containment system, high-efficiency air scrubbing, and a vacuum extraction process, we successfully restored the facility while allowing uninterrupted operations. Our customized approach ensured a safe and compliant work environment for both our team and Carlstar’s ongoing production.

## Key Takeaways

• Custom containment solutions, like the Negative Air Enclosure, are crucial for controlling airborne contamination.

• Scaffolding, rather than traditional man lifts, can allow restoration to proceed without halting facility operations.

• IICRC standards require four air changes per hour in negative air enclosures; our system achieved eight air changes per hour.

• Continuous air quality monitoring and filter management are essential in high-contamination environments.

• Vacuum truck integration with exhaust systems can significantly improve air purification in industrial settings.

• Strategic planning and adaptability are key to restoring large-scale manufacturing plants without disrupting operations.

Oracle Restoration Group remains committed to utilizing innovative restoration techniques to minimize business disruptions while delivering high-quality results.