



Ames Warehouse Fire ER Parkersburg , WV October 21 – November 1, 2017

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and
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Site Location

- Warehouse located in a residential area mixed with some commercial businesses
- $\frac{1}{4}$ mile from the Little Kanawha River
- 2.5 miles where it enters into the Ohio River
- Prevailing wind towards City of Parkersburg and Blepre, Ohio

Ames Warehouse Fire ER



Site Background

- Building was approx. 500,000 sq. feet
- Property was 10 acres in size
- Conglomeration of multiple buildings
- Ames Co. manufactured shovels and gardening tools from the early 1800's through 2005.
- Currently owned by IEI Plastics and used for storage of recycled and off-grade plastics





Situation:

- Fire began at approx. 12:30 am on Saturday, October 21, 2017
- Large fire – Warehouse was quickly being consumed
- Multiple Fire Departments responded
- Unknown what material was in warehouse
- All Safety Data Sheets were inside the Facility and “unretrievable”
- Reported Supersacks of Plastic Pellets and 100 drums of resin





First 12 hours of Response



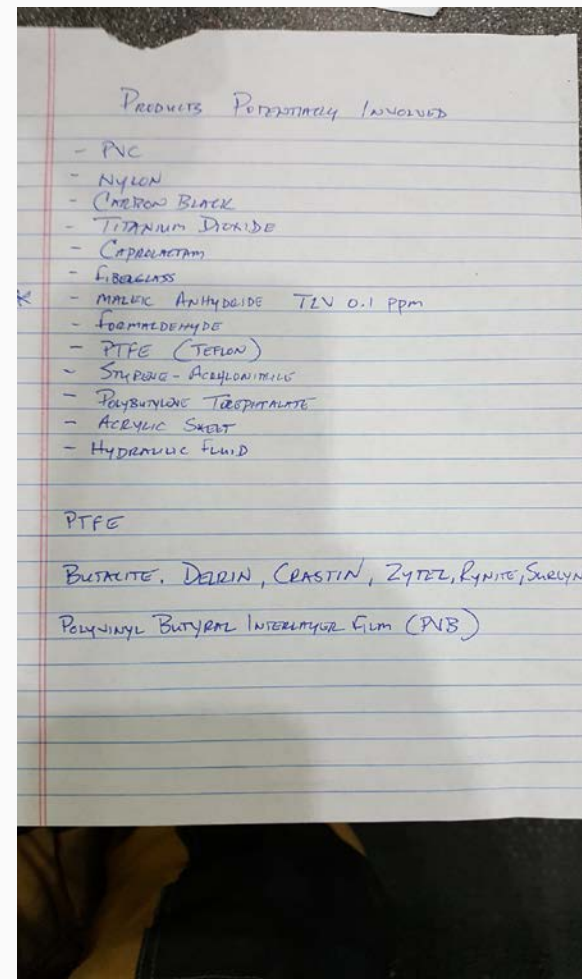
First 12 hours of Response



First 12 hours of Response

- Locals tried to extrapolate what might be in the facility from a binder of material safety data sheets
- List that was being circulated included:

PVC and Nylon	Carbon black
Caprolactam	Fiberglass
Maleic anhydride	Formaldehyde
Styrene acrylonitrile	PTFE (Teflon)
Acrylic sheets	Hydraulic fluids
Polybutylene terephthalate	
- No one clear as to what materials were in the building





Response Actions – Day 1

- Operating under Incident Command System
- Fire Chief – Incident Commander
- WVDEP arrived on-site late morning.
 - Conducting air monitoring using hand held PIDs
- Shelter-in-Place for residents
- Large black plume of smoke and plastic odor
- EPA received NRC Report at approx. 5:00 pm on Saturday, October 21
 - Coordinated assistance to the WVDEP for particulate monitoring
 - Deployed 2 START Contractors and 5 data rams. Data collection began around 1:00 am on Sunday, October 22



Initial Days of Response –Plume moving over City of Parkersburg into Ohio



Andrew J. Edgar
ANDREW J. EDGAR

Initial Days of Response –Plume moving over City of Parkersburg into Ohio



Initial Days of Response –Plume moving over City of Parkersburg into Ohio









Response Actions – Day 2

- Fire Fighting Operations Continued
- County made decision to retain a Heavy Equipment Contractor
 - “let it burn” not a viable option
- Shelter-in-Place for residents still in place.
- Evacuation Shelters opened → Not utilized
- Large black plume of smoke and plastic odor continue





Day 2 Fire Fighting - Entire Building Consumed



Day 2 - Fire Fighting Operations - Using AFFF Foam



Plume looking from Ohio



Response Actions – Day 3

- Fire Fighting Operations Continued
- Governor declares State of Emergency and offers all necessary resources
- WVDEP requests additional air monitoring/sampling support from EPA
 - Continue particulate monitoring
 - Coordinated with ERT for 8 AreaRAEs and Viper System
 - Arrange for air sampling (summa canisters – TO#15 analysis)
- County hires Consultant to conduct air monitoring/air sampling (Center for Toxicology and Environmental Health LLC (CTEH))



Response Actions – Day 4 and On

- Fire Fighting Operations Continued
- County continues to operate under a “modified” Incident Command System
- County conducting daily Press Conferences
- Governor declares **transparency of data** and **public posting data** as soon as it is available
- Schools and Government Offices remain closed

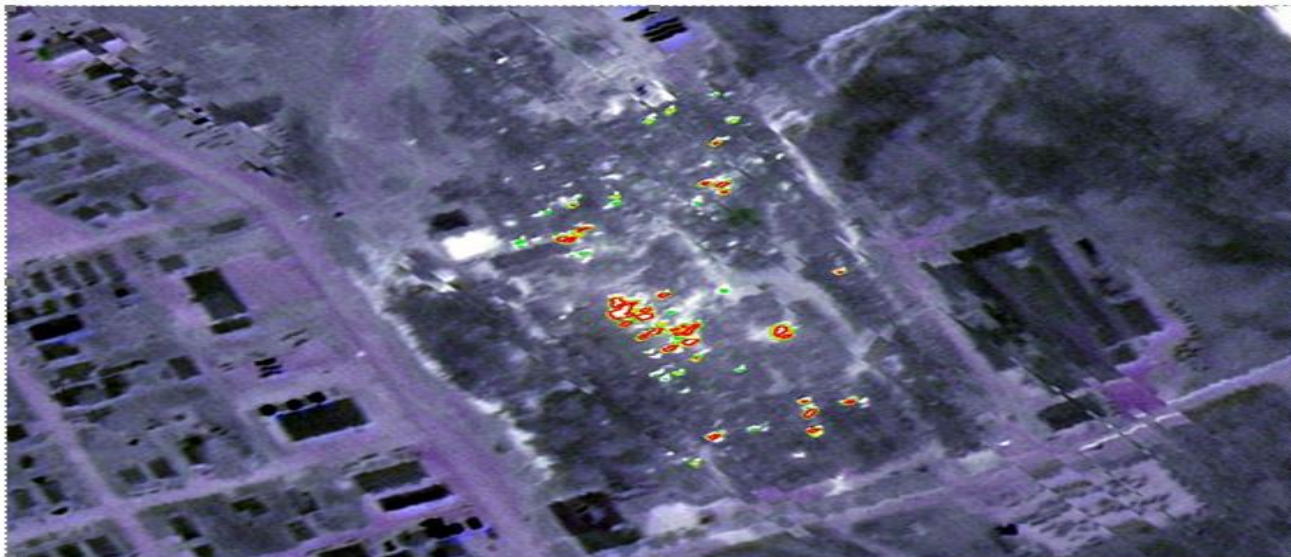


Response Actions – Day 4 and On

- County requests support from EPA on interpretation of data
- EPA requests ATSDR assistance - helps bridge coordination between local/county, State and Ohio health agencies
- Water sampling at outfalls on Little Kanawha River
- ORSANCO assisted with analysis of outfall samples
- ORSANCO conducts sampling on the Ohio River
(every 20 miles from MM 183 -304)



EPA offers County the use of Aspect



- ASPECT was dispatched to support response efforts associated with the Parkersburg warehouse fire on 26 October 2017
- ASPECT conducted 3 flights between October 26 – 28, 2017
- No chemical detections were observed on any passes during the flights
- Thermal imaging showed a reduction in the thermal signature over the 3 flights



Jackson Duke



Response – Completion

- Fire burned for 9 days → October 29, 2017
- 2 days of Watchstanding
- Fire officially declared over → October 31, 2017
- EPA conducted final round of Air Sampling on November 2, 2017
- Schools & Government Offices closed for 5 days total
- Significant \$\$ for contracts for Heavy Equipment Contractor & Consultant awarded by County and to be paid by State





After the Fire – Drums and Debris



After the Fire – Drums and Debris



Building Footprint after the Fire



Air Sampling/Air Monitoring Approach

- Difficult to develop the best Air Monitoring/Air Sampling Plan not knowing what was inside the building
- Particulate Monitoring
- Looking for products of incomplete combustion
- Looking for products (HCN and Cl₂) from burning of plastics
- Background for screening purposes
- Strategy based on available equipment/sensors



AQI Index for Particulate Matter

AQI Category	Index Values	Breakpoints ($\mu\text{g}/\text{m}^3$, 24-hour average)
Good	0 - 50	0.0 – 12.0
Moderate	51 - 100	12.1 – 35.4
Unhealthy for Sensitive Groups	101 – 150	35.5 – 55.4
Unhealthy	151 – 200	55.5 – 150.4
Very Unhealthy	201 – 300	150.5 – 250.4
Hazardous	301 – 400	250.5 – 350.4
	401 – 500	350.5 – 500



Air Sampling Results

- Particulate Monitoring:
 - Maximum concentrations from the particulate monitoring did show exceedances above the good range and into the hazardous range based on the Air Quality Index standards.
 - Maximum concentrations were generally observed as spikes (15-30 min) during a monitoring period.
 - Monitoring data also showed that both the TWA and maximum particulate readings consistently decreased each day of the response until the fire was declared over.



Air Sampling Results (continued)

- AreaRAE Monitoring
 - Sensors used included VOC, HCN, NH₃, O₂ and CL₂
 - No significant readings over the 8 day period
- TO #15 Air Sampling
 - Common solvents (acetone)
 - Gasoline/petroleum related constituents
 - Refrigerants (Freon R-11 and R-12)

Most, if not all, of these compounds could also be formed from burning materials such as plastics or other organic materials (e.g. wood.) as products of incomplete combustion (PIC).



Long Term Actions

- WVDEP has the lead for Site cleanup
- Property Owner had approx. 8 other storage buildings in the Parkersburg area.
- Fire Code Inspections by the Fire Marshal
- EPCRA and RMP Inspections were conducted



General Conclusions

- Difficult not working in a Unified Command
- Immediate posting of data challenging
- Air monitoring/sampling in any response is challenging
- Understanding limitations of the air monitoring equipment
- Having toxicologist on-site helped with interpretation of data and public messaging