Columbus Chemical

Region 5 RRT Meeting
October 20, 2009

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Presentation Overview

- Event Overview
- Air Monitoring
- Additional Environmental Sampling
- Response Challenges
- Fire Aftermath
- Site Stabilization and Clean-Up
- Waste Disposal & Disposition
- Current Status
- Successes
- Lessons Learned
Event Overview

Columbus Chemical Industries

- Chemical distribution company for
  - Pharmaceutical industry
  - Semi-conductor/electrical manufacturing
  - Analytical labs
  - Educational institutions
- Common products include:
  - high purity acids and salts
  - analytical quality solutions/blends
  - custom private-label packaging
Event Overview

Monday May 11, 2009

- 20:04 First call from ADT (alarm service)
- 20:11 Fire units on scene
- 20:20 WDNR notified
- 20:29 UC established
- 20:31 STH 73 closed
- 20:38 Explosion
- 20:53 Fire suppression ceased
Event Overview

Monday May 11, 2009

• 21:15 54th WMD Civil Support Team mobilized
• 21:18 Local radio announcements
• 21:20 Dane Co. Level A Hazmat Team mobilized
• 21:36 Code Red (“Reverse 911”) launched
  • 7,879 calls (shelter in place)
• 23:16 STH 151 closed
Event Overview
Tuesday May 12, 2009 (Day 2)

- 01:05  EPA Call-out
- 05:00  Air monitoring initiated
- 11:39  STH 151 opened
- 15:30  Shelter-In-Place lifted
- 16:00  Runoff sampling conducted
- 18:30  Air recon by 147\textsuperscript{th} AV
- 20:00  Containment berms constructed
Event Overview

Wednesday May 13, 2009 (Day 3)
- Wind changed & limited Shelter-In-Place reinstated
- Wipe samples collected
- DOJ & ATF conducted investigation
- Bottled water supplied
- BT² assumed air monitoring from EPA

Thursday May 14, 2009 (Day 4)
- Heavy rain extinguished fire
  - 50+ hours after fire started
- Final Unified Command meeting
Air Monitoring

- NARAC (National Atmospheric Release Advisory Center) models initially developed for general chemical fire
- Models revised throughout response based on chemical inventory information and field data
- Models also used to prepare for weather changes
Air Monitoring

• Downwind area divided into two sectors
  • CST/Hazmat – Incrementally clear evacuated area
    • Area Raes (PID, HCN, LEL, O₂, CO)
    • Summa Canister
  • US EPA – Neighborhood monitoring
    • Multi-Rae
    • HCN ToxiRae
    • Data Ram
    • Draegers

• Results: HCN, Acid, and Particulates detected above background, but below health action levels
Additional Environmental Sampling

- Runoff sample
  - Field screening conducted by EPA indicated pH=0
  - Laboratory analysis confirmed corrosivity
Additional Environmental Sampling

- Particulate wipe tests
  - Locations selected by WI Department of Health Services
  - Field screening conducted by EPA indicated acidic deposition in Fall River
  - Samples sent to WI SLH for analysis
Response Challenges

• Huge command staff
• Duration of fire
• Public information
• Incomplete (and changing) chemical inventory
• Proximity of neighboring properties
• Highly acidic runoff
  • Public areas impacted
• Clearing the downwind area for reuse
Fire Aftermath

- Scene turned over to CCI on Thursday May 14, 2009 after the morning command meeting
- WDNR sole remaining regulatory agency
- The site was deemed too unstable to conduct the initial clean-up.
- First entry/assessment on Sunday May 17, 2009
- Competing priorities
  - Ongoing health, safety, environmental concerns
  - Preserving evidence for fire investigation
  - Owners desire to re-start business operations ASAP
First Entry – Sunday May 17, 2009
Fire Aftermath

• Non-existent consultant chain of command created confusion and a lack of progress
  • Columbus Chemical Environmental Consultants
    • BT²
    • North Shore
  • Insurance Companies
    • AIG (environmental)
    • Liberty Mutual (property)
  • Insurance Companies’ Consultants
    • Meagher & Associates
    • CTEH
    • EQ
Site Stabilization and Clean-Up

- On Tuesday, May 19, 2009, WDNR asked for US EPA assistance to address imminent risks posed by site conditions
- US EPA and WDNR requested work plan from RP and consultant team
  - Simultaneous site clean-up and fire investigation
  - Emergency contingency plan
  - Consultant chain of command and accountability
  - Schedule
Site Stabilization and Clean-up

- Work plan submitted to US EPA & WDNR on Friday, May 22, 2009
- Established successful implementation of site unified command, site hazard stabilization, cleanup actions, fire investigation activities.
- CCI also re-occupies and operates out of Building 3 on May 22, 2009 overnight shifts.
Fire Location – Building 4

Resumed Operations – Building 3
Site Stabilization and Clean-Up

• Fire investigation completed on Friday, May 29, 2009.
  • Suspected cause: electrical

• Chemical debris containerization completed on Sunday, May 31, 2009.
  • Initial attempt to containerize compatible materials failed due to continuing reactions in overpacks
  • In-situ neutralization with lime; resulting material bulk packaged in rolloffs.
Site Stabilization and Clean-Up

- Unaccounted for Sodium Metal dispersed during initial explosions
  - Continued threat during clean-up
  - Concern during rain events
  - Sodium Metal 250 lbs - inventory
- Wastewater
  - Runoff contained by berms
  - Runoff water neutralized with lime
  - Septic tanks and process treatment tanks full from fire suppression water
  - Timely mobilization of frac tanks
Site Stabilization and Clean-up
Berm Containment, Runoff Water Neutralization and Storage
Site Stabilization and Clean-Up

- **Groundwater**
  - Bottled water recommendation lifted on May 29, 2009
  - Low-level impacts to groundwater detected in existing on-site monitoring wells

- **Soil**
  - Extensive soil sampling conducted at varying depths
  - Formaldehyde contaminated soil excavated (~6’ bgs)
  - Acid contaminated soil neutralized
**Waste Disposal**

**Waste Totals:**
- 15 - rolloffs of neutralized chemical debris
- 10 - rolloffs of building debris
- 6 - rolloffs of concrete
- 12 - rolloffs of contaminated soil
- 80,000 gals of runoff wastewater
- 2 drums of elemental sodium
- 40 drums of labpacked residual chemical containers
Waste Disposition

• Neutralized chemical debris material was determined to be non-corrosive, but still considered hazardous because of formaldehyde
  • MDEQ would not allow EQ to accept this waste stream
  • Final disposition Sarnia (Windsor, Canada)
• WDNR “contained out” determination for soil and concrete allowed for disposal in WI landfills
• Sheet metal and steel was recycled
• Wastewater accepted by local POTW
Current Status

• Site investigation report and remedial action plan submitted to WDNR on August 24, 2009.

• WDNR approved plan on September 24, 2009.

• Remediation expected to be completed by Spring, 2010.

• CCI rebuilding production, warehouse, and wastewater treatment facilities.
Successes

• Public health protected
• Unified Command
  • Approximately 20 Local, State, and Federal agencies coordinated well together
• Limited environmental impacts (containment)
• Timely clean-up
• Neighboring areas quickly cleared for reuse
Successes

- CCI’s fire walls worked
- CCI had limited lost production
  - days instead of weeks
- CCI suffered minimal economic losses
- CCI avoided layoffs
Successes

- EPA & WDNR Interaction
- WDNR Internal Coordination - several programs contributed to the response via the Regional Spills Coordinator
  - Law enforcement assisted with initial response
  - Haz Waste assisted in characterization and “contained out” determinations
  - Wastewater assisted in disposal of runoff
  - Drinking water assisted with private water well issues
  - Fisheries assisted with potential impacts of runoff to surface water
Lessons Learned

• Improve transition when Unified Command dissolves
• Utilize additional PIOs
  • Sheriff’s Office served as sole PIO
    • Multi-agency
    • Multi-jurisdictional
    • Highly technical incident
Lessons Learned

• Need Emergency Contingency Plan for site clean-up phase of incident prior to demobilization of Unified Command
  • Risk of subsequent explosions
  • Notification procedure
  • Response actions
• Establish chain of command for contractor team earlier
Questions?

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