EAST PALESTINE, OHIO TRAIN DERAILMENT



Ohio River Valley Water Sanitation Commission (ORSANCO)



EAST PALESTINE DERAILMENT PRESENTATION & DISCUSSION

- 1) Incident & Response Overview
- 2) Data Overview & Analytical Discussion
- 3) Challenges & Lessons Learned
- 4) Questions & Discussion





INCIDENT OVERVIEW & RESPONSE

East Palestine Train Derailment



Feb 3, 2023 – Train derails in East Palestine, OH at 20:55

- 50 cars derailed (10 haz mat tankers)
- NRC report received 23:12 indicating derailed cars on fire
 - Potential release of unknown materials



Feb 4, 2023 –

- Fire ongoing, but reduced
- 5 vinyl chloride tankers derailed (at least 2 engulfed)
- Other hazmat railcars also burned
- Unknown materials/quantities released
- Sulphur Run to Leslie Run impacted by runoff
- Fish kill observed
- Incident location is 19 stream miles to the Ohio River
- Enters Ohio River at ORM 39.6

Melissa Smith via AP

- ORSANCO notified water utilities from East Liverpool, OH to Weirton, WV
 - Spill report emailed to distribution list

Feb 5, 2023 –

- Pressure buildup noted in vinyl chloride railcar due to damaged relief valve
- EPA/RP conducting water sampling in creeks
- Press conference indicates material contained and none has reached Little Beaver Creek

Feb 6, 2023

- Products being transported reported to include:
 - Vinyl chloride
 - Butyl acrylate
 - Benzene residue
 - Combustible liquids
- Volumes released unknown



Gene J. Puskar / AP

- OEPA reports some butyl acrylate released into the creek and escaped containment
- Weirton, WV ODS station running samples every 2 hours

EVACUATION ZONES FOR CONTROLLED RELEASE



Feb 7, 2023 –

- ORSANCO briefs Technical Committee
 - No detections at that time
 - Shortly thereafter first detection observed
- Butyl acrylate detected at Weirton in sample collected at 1600 on Feb 6
- All surface water utilities from East Liverpool, OH to Wheeling, WV notified by phone of detections
- ORSANCO water quality field crew mobilized



INITIAL DETECTION AT WEIRTON, WV FEB 6, 2023 AT 1600

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Feb 8, 2023 –

- ORSANCO crew sampled Little Beaver Creek to Bellaire, OH
- Samples collected in triplicate
 - 1 for local ODS
 - 1 for GCWW
 - 1 for ORSANCO
- Second crew deployed to Incident Command
- Received train manifest
- Ordered butyl acrylate standard





Feb 9-10, 2023 –

- ORSANCO met with response agencies & RP at Command Center
- Repeated similar sampling approach as done on Feb 8
 - Little Beaver Creek to Wheeling+
 - Samples run at Wheeling Water
- WV water intakes shut down
 - Needed 2 non-detects in finished to reopen

Feb 11 - ATSDR releases Health Guidance Values

- n-Butyl acrylate: 560 ug/L
- 2-ethylhexyl acrylate: 500 ug/L





Feb 11-19, 2023 –

- Transitioned sampling to tracking leading edge
 - Sampled 50 to 120 miles per day
 - Early on plume traveled ~25 miles/day
 - Later, velocities increased to ~100 miles/day
- Daily routine:
 - Daytime Collect samples
 - Evening Drop samples off at ODS lab for analysis
 - Evening Get set of samples to GCWW
 - Late night Receive results from ODS lab
 - Late night Run Time-of-Travel Model
 - Repeat cycle







Feb 19-20, 2023 –

- Fixed station sampling at Markland Locks & Dam
 - Sampled every two hours from lockwall
 - Samples analyzed by Louisville Water

Feb 21-22, 2023:

- Fixed station sampling at Cannelton Locks & Dam
 - Sampled every two hours from lockwall
 - Samples analyzed by Evansville Water

All samples from Markland & Cannelton non-detect



Feb 22-23, 2023 –

- Partial loss of containment reported near derailment site due to precipitation / high-flow
- ORSANCO crew sampled morning of Feb 23
- Low-level hits on Little Beaver Creek and Leslie Run
 - Butyl acrylate
 - 2-ethyl hexanol
 - 2 ethylhexyl acrylate

March-April

- Coordinated water quality sampling and analysis with several water utilities along length of river
- All results non-detect



TRAIN DERAILMENT RESPONSE

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CHALLENGES

East Palestine Train Derailment

COMMUNICATION CHALLENGES

- 1) Limited/inaccurate incident details during early stages
- 2) ORSANCO not privy to response agency reports
- 3) Complete Unified Command not established early
- 4) Struggled to get a coordinated sampling plan
- 5) Misleading social media led to undue public alarm
- 6) Many do not understand nature of their drinking water source
- 7) Inundated with information requests
- 8) Intense media and political interest
- 9) Consistent messaging on dioxin slow to develop

ANALYTICAL CHALLENGES

- 1) Initially unknown materials released
 - What to test for?
- 2) Labs not calibrated for butyl acrylate and other compounds released
 - Needed standards to calibrate
- 3) Unusual detections at Wheeling ODS
 - Detections interspersed with non-detects
- 4) ODS capabilities and utility not understood by some agencies

DATA CHALLENGES

- 1) Which data to distribute and publish?
 - ODS screening vs GCWW
- 2) How to best report peaks less than PQL?
- 3) Consistent messaging with partners
- 4) Keeping up with sample info, mapping and analytical results
- 5) Connectivity issues with electronic devices

LESSONS LEARNED

LESSONS LEARNED

- 1) Be proactive to post contact info and incident details online
- 2) Response agencies unfamiliar with key attributes of ODS network
 - Prepare materials detailing ODS capabilities, applications, and limitations to share with response agencies
- 3) Develop spill response toolbox to standardized data collection/reporting and improve spill response readiness
- Need common understanding among partners regarding data reporting
 - Screening level vs certified results
 - Reporting data for peaks <PQL ???

LESSONS LEARNED AREAS FOR IMPROVEMENT

- 5) Proactively determine need for Command Center engagement and water quality sampling
- 6) Staff resources stretched to limits
 - Need more staff cross-training for necessary redundancy
 - Sampling, GIS, data management, ODS, Incident Command, public info
- 7) SWIGs want to be on spill updates
- 8) Engage ATSDR early if unregulated materials involved
- 9) Keep task management groups small (e.g. sampling plan development)

QUESTIONS OR COMMENTS?

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