



# 2015 Train Derailment Incident

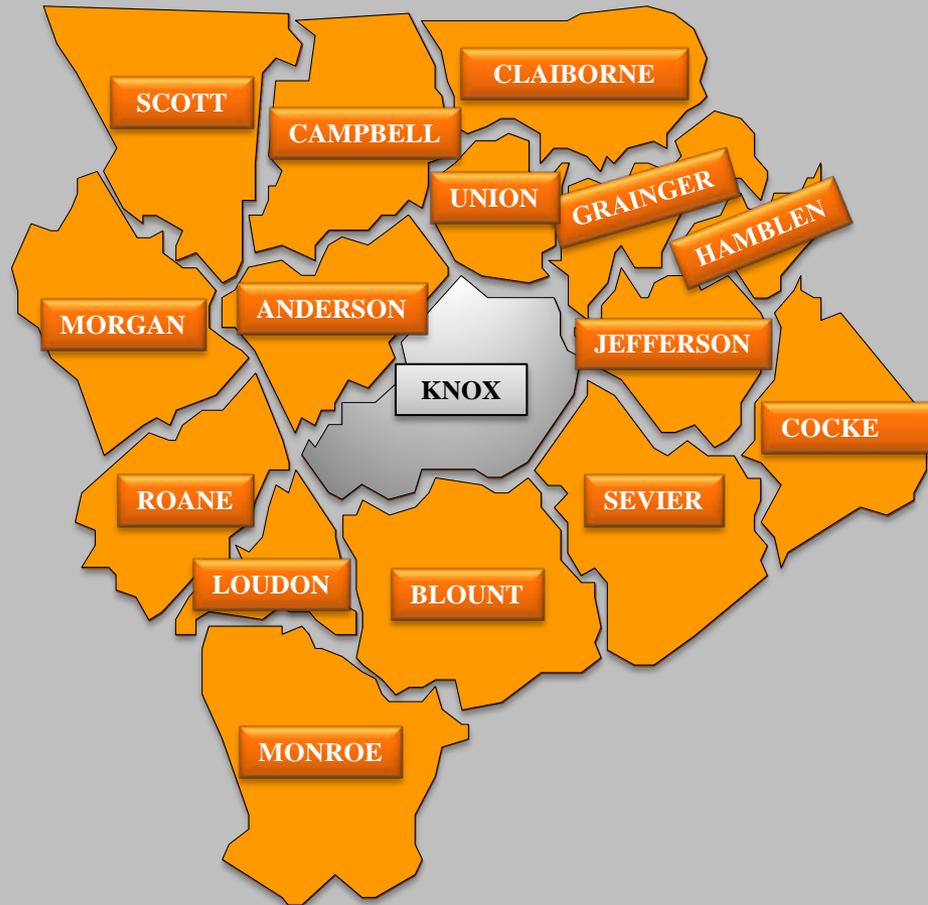
Blount County – East Region

# Overview

- Blount County is located south of Knoxville with a population of 126,339 people and borders the Great Smoky Mountains National Park
- City of Maryville population is approx. 30,000



# East Tennessee Health Region



# Initial Information

- On July 1, 2015, at approximately 11:50 PM, one tank car containing acrylonitrile (stabilized: UN1093/131P flammable liquid-toxic) derailed on a CSX Railroad near Maryville, Tennessee
- Crew of southbound CSX Train S54101 (key train) reported seeing a fire near the rear of train
- After safely stopping the train, the crew found the 37th car (UTLX901717) to be derailed with the bottom of the car completely engulfed in flames



# Incident Progression

- A broken axle on a single CSX rail car hauling 24,000 gallons of acrylonitrile derailed the tanker, causing a fire that burned for 19 hours and sent a poisonous plume of smoke into the sky
- Among the 57 car train, there were 27 cars carrying hazardous chemicals:
  - nine with acrylonitrile,
  - 16 with LP gas (propane), and
  - two with liquid asphalt
- The train was headed from Cincinnati, OH to Waycross, GA



# Incident Progression Cont.



# Incident Progression Cont.



# Incident Progression Cont.



# Incident Progression Cont.



# The Cause



# Acrylonitrile

- Flammable, toxic, and colorless liquid used in the manufacture of plastics
- Considered carcinogenic
- Exposure can burn the skin, inflame the lining of the lungs, throat and nose and cause headaches, nausea and dizziness
- The burning of acrylonitrile creates a byproduct of hydrogen cyanide
- Fire caused the level of concern to escalate quickly



# Evacuation



- Mandatory multi-jurisdictional evacuations started around 12:30 a.m.
- Evacuation zone initially covered 1 ½ mile radius quickly extended to 2 miles and further based on plume modeling
- About 5,000 people were affected and several businesses in the area were closed for the day including a Walmart Super Center, Lowes and Home Depot, and DENSO which is Blount County's largest employer resulting in the possibility of a huge economic impact

# Sheltering

- Initial evacuation rally point at Foothills Mall
- Red Cross shelter established within a couple of hours at Heritage High School just outside of Maryville for those who did not have a place to stay while evacuations were in effect
- CSX initially established a Family Assistance Center in the shelter then moved to the nearby Heritage Middle School



# Shelter Support Units



# ETR Public Health Response

- ET RHOC elevated to Level 4
- KCHD ERC deployed to RHOC
- ET RHC and KCHD Backup RHC deployed to their duty stations in the RMCC
- Blount County Health Department Director deployed to various Blount County locations
- Two public health nurses per operational period were deployed to the shelter
- EMS Consultant and Ambus



# RHOC: Levels of Activation

5	Normal Operations	No event or emergency exists. The RHOC Command position is monitored by the Emergency Preparedness staff.
4	Elevated	The potential or likelihood of an event developing or worsening exists. RHOC staff may be notified to be on stand by.
3	Declared Event	Key personnel needed to conduct operations as designated by the Regional Director and the Emergency Response Coordinator are activated. One or more of the section chiefs may be activated depending on the nature of the event. The RHOC would be physically operational at this level.
2	Major Event	Additional personnel for specific functions needed to conduct operations as designated by the Regional Director and the Emergency Response Coordinator are activated in anticipation of sustained operations.
1	Catastrophic Disaster	This level of activation would be a complete and full activation, with all positions at full staffing.

# RHOC: Training Mode



# RHOC: Activation Mode



# ET RHOC Staffing

- Incident Commander – Regional Director, Janet Ridley
- Liaison Officer – KCHD ERC, Larry Hutsell
- PIO – Refer to SHOC and CSX provided numbers
- Operations Chief – ERC, Jack Cochran
- Planning Chief – ASA-2, Paul Haug
- Hospital Coordination – ET RHC, Wanda Roberts  
KCHD Backup RHC, Amber Sparks

# ET RHOC Incident Action Plan (IAP)

- Developed four objectives for the 1<sup>st</sup> operational period:
  - Support shelter operations and mass care by deploying two public health nurses per operational period to the shelter at Heritage High School (Capability 7)
  - Support the Blount County Unified Command Post by deploying the Blount County Health Department Director to various locations as needed (Capability 3)
  - Support Blount Memorial Hospital RE: Medical Surge by securing the appropriate number of Cyanokits for the anticipated surge of potentially exposed patients (Capability 10)
  - Support RMCC operations by deploying the ET RHC and the KCHD Backup RHC to the RHC duty station in the RMCC (Capability 3)

# Communications

- RHOC Operations Chief maintained contact with the TEMA District Coordinator in the Blount County Unified Command Post, the Blount County Health Department Director, the RHCs in the RMCC, the SHOC, and the TDH ESCs
- RHOC Liaison Officer maintained contact with the primary EMS provider on scene and the regional and state EMS officials
- RHCs in the RMCC maintained contact with BMH, ETR and Knox County hospitals, neighboring RHCs, and the SHOC
- Routine RMCC staff monitored the event and provided support to the EMS agencies as needed

# RHOC Communications Systems Utilized

- Landlines
- E-mail
- Texting
- 800 MHz Radio System
- UHF Radio System
- HRTS
- TNHAN
- Monitored Web-EOC
- Monitored News Conferences
- Monitored News Media
- Monitored Active Weather Satellite

# Hospital/RHC Response

- At 3:18 AM, Blount Memorial Hospital (BMH) made initial notification to ET RHC allowed ETR to function pro-actively rather than reactively
- By 6:15 AM, BMH recognized the extent of the incident as it unfolded
- HRTS activated and served as primary source of information sharing including a message board
- Hospital requested assistance from RHC early in the event for Cyanokits
  - All Knoxville area kits were transferred to BMH and the RHCs across the East Grand Division secured additional kits
  - Central Office EP staff worked flawlessly to secure more kits
  - A total of 41 kits were identified and began deployment to the hospital via Tennessee Highway Patrol (ESF-1 Request)
  - Within 2 hours, most of the kits were delivered by THP
  - Within 8 hours, all kits had been delivered

# Coalition Role

The Knox/East Tennessee Healthcare Coalition (KET) played a vital role with assisting both community- and facility-specific needs. Drawing on the lessons learned from **years** of annual drills and the connections from the strong, diverse, partnerships within the Coalition, contacts and membership contributions were identified early on and used to offset some of the challenges of this event.



# Testing

- EPA deployed two on-scene coordinators and provided support in assisting the state and local responders with air monitoring and water quality testing
- Contaminants were found in one well within the evacuation zone
- Members of the 45th Civil Support Team of the Tennessee Air National Guard were also deployed from Smyrna to Blount County with special air-testing equipment

# Blount Memorial Hospital Patient Statistics

- Total Encounters – 176 patients seen (patient follow-up still ongoing)
- Total Emergency Encounters – 157 patients
- Total Decontaminated on July 2<sup>nd</sup> – 88 patients
- Total Went to Children’s Hospital – 7 (adults and children)
- Total of 44 Admissions

# Soap?



# BMH Patient Care and Treatment

- Symptoms
  - Burning Throat
  - Cough
  - Tightness in Chest
  - Headache
- Treatment
  - Oxygen Flushing
  - Observation



# Extra Staffing Needed for Patient Care

- Emergency Department
  - Quality Management
  - Inpatient Nursing
  - Information Systems
  - Maintenance
  - Infection Control
  - Nursing Administration
  - Nursing Education
- PLUS
- Maryville Fire Dept
  - Alcoa Fire Dept



# ETR EP Strengths/Areas For Improvement

The AAR/IP identifies the following observations:

- Strengths
  - Existing strong regional coordination process with all partners
  - Existing well-trained Nurse Strike Teams (2 teams of 5 nurses)
  - Well-equipped and tested ET RHOC with properly trained personnel
    - Incident management
    - Communications systems
- Areas for Improvement
  - Place county health department director in the local unified command system more quickly in future events
  - Revisit the role of ETR public health nurses functioning in an ETR Red Cross shelter

# ETR HPP Strengths/Areas for Improvement

- Strengths
  - Knox/East TN Health Care Coalition (KET) cohesiveness and knowledge of resources
  - Strong relationships between the RHCs and their hospitals
  - Communication between hospitals, the RMCC, and public health
  - Existing TEMARR systems which allowed effective communication flow without time-consuming duplication of quickly evolving information
- Areas for Improvement
  - Local communication from scene to hospital, initially and during the event
  - Identifying one source to report pertinent information to avoid confusion with inconsistencies from several sources

# Questions Of The ETR EP Staff?



## **Bottom Row:**

Kelley Tobey	<i>Nurse Consultant</i>
Wanda Roberts	<i>Regional Hospital Coord.</i>
Katrina Tyler	<i>Medical Reserve Corps</i>
Paul Haug	<i>Administrative Assistant</i>

## **Top Row:**

Jack Cochran	<i>Emergency Response Coord.</i>
Brittany Isabell	<i>Regional Epidemiologist</i>
Brad Parman	<i>Environmental Epidemiologist</i>
Tamara Chavez-Lindell	<i>Food Safety Epi</i>