Emergency Response Best Management Practices

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Responding to a Chemical Emergency

- The response itself must:
  - Be rapid
  - Involve more resources than needed at the outset
  - Be properly staffed
- Emergency responders must:
  - Be properly trained
  - Be properly equipped
  - Have the proper expertise

Responding to a Chemical Emergency

- Considerations:
  - Human impacts/safety/evacuations
  - Environmental impacts
  - Business interruption
  - Situational awareness
  - Mitigation/remediation resources
  - Crisis communication
  - Regulatory requirements
  - Data management
  - Company reputation
  - Managing the overall response- logistics, operations, planning, finance- Unified Command

Responding to a Chemical Emergency

- Things that are not always so obvious:
  - Public perception of the response
  - Public anxiety about returning home
  - The extent of offsite impacts
  - Variable data quality/management
  - Regulatory agendas
  - Contractor battles
  - Media influences
  - Litigious interests

Understanding Litigious Interests

- High probability of lawsuits being filed against the responsible party (at least in the US)
- Future scrutiny of data collected
- Future scrutiny of relationships between consultants and the RP
- Future scrutiny of on-site activities
- Claims will be made by people affected in varying degrees
- Response activities must keep future implications in mind: Think about it DURING the response, NOT AFTER

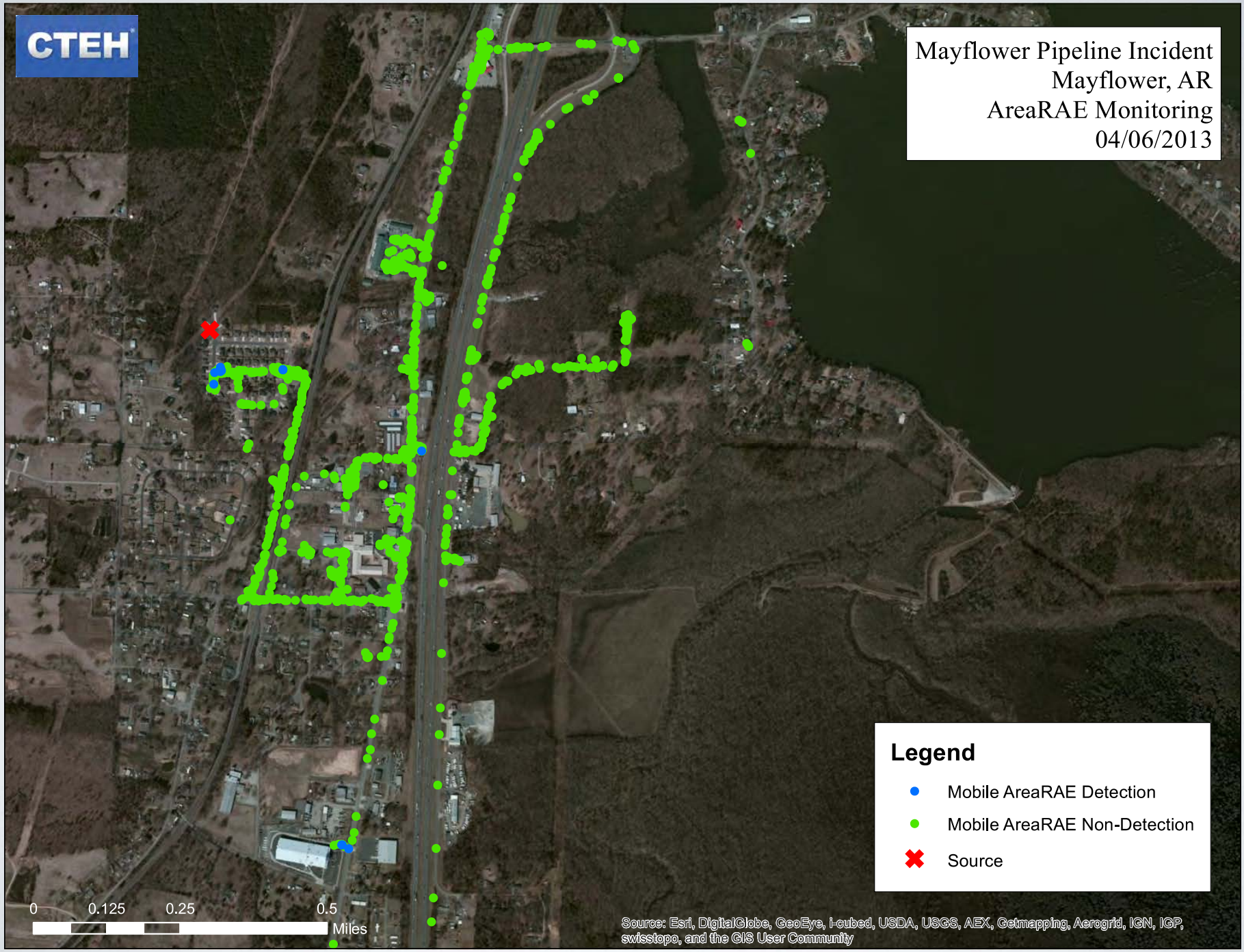
Chemical ER Best Practices: Preparedness

- Contractors/Consultants and RP response team must be prepared to travel 24/7/365 and have:
  - Properly trained personnel on call
  - Necessary equipment ready to go
  - Rapid response time (planes on go)
  - Ability to begin work on site immediately
  - Ability to staff multiple shifts within 24 hours
  - Draft plans ready for review upon arrival

Equipment Readiness

Chemical ER Best Practices: Air Monitoring/Sampling

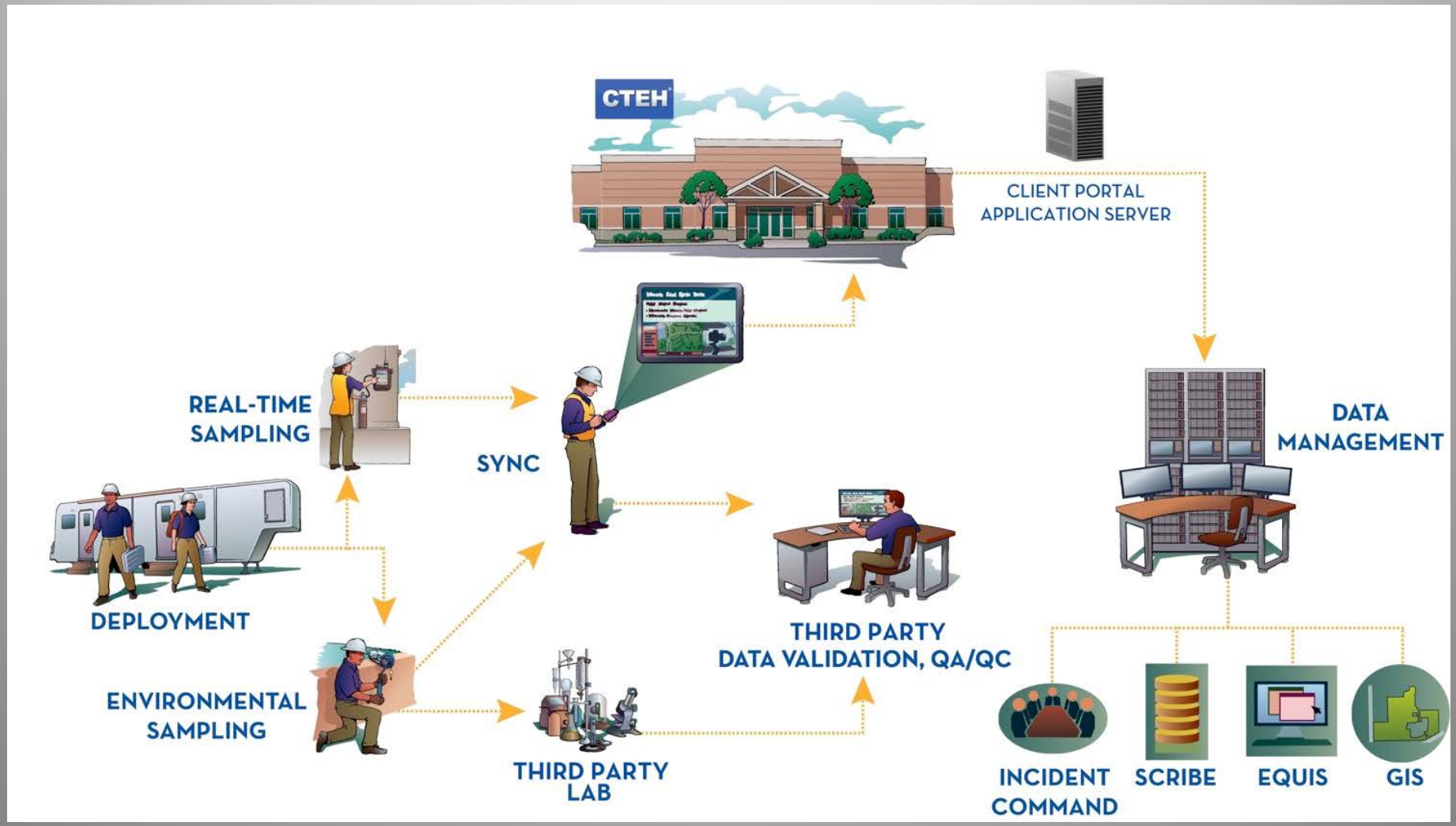
- Worker health and safety
- Community health and safety
- 360 degree perimeter and offsite documentation
  - Document presence of chemicals
  - Document absence of chemicals
- Recommendations on PPE, evacuations, and “all clear”
- Rapid data collection, interpretation, and presentation
- Wind direction always matters, but more so during claims/litigation


CTEH
Mayflower Pipeline Incident
Mayflower, AR
AreaRAE Monitoring
04/06/2013
Legend
Mobile AreaRAE Detection
Mobile AreaRAE Non-Detection
Source
0
0.125
0.25
0.5
Miles
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Chemical ER Best Practices: Soil/Water/Waste Monitoring/Sampling

- Determining extent of impact-fingerprinting
- Proving remediation
- Satisfying regulatory requirements
- Mediating regulatory requests

Chemical ER Best Practices: Data Management



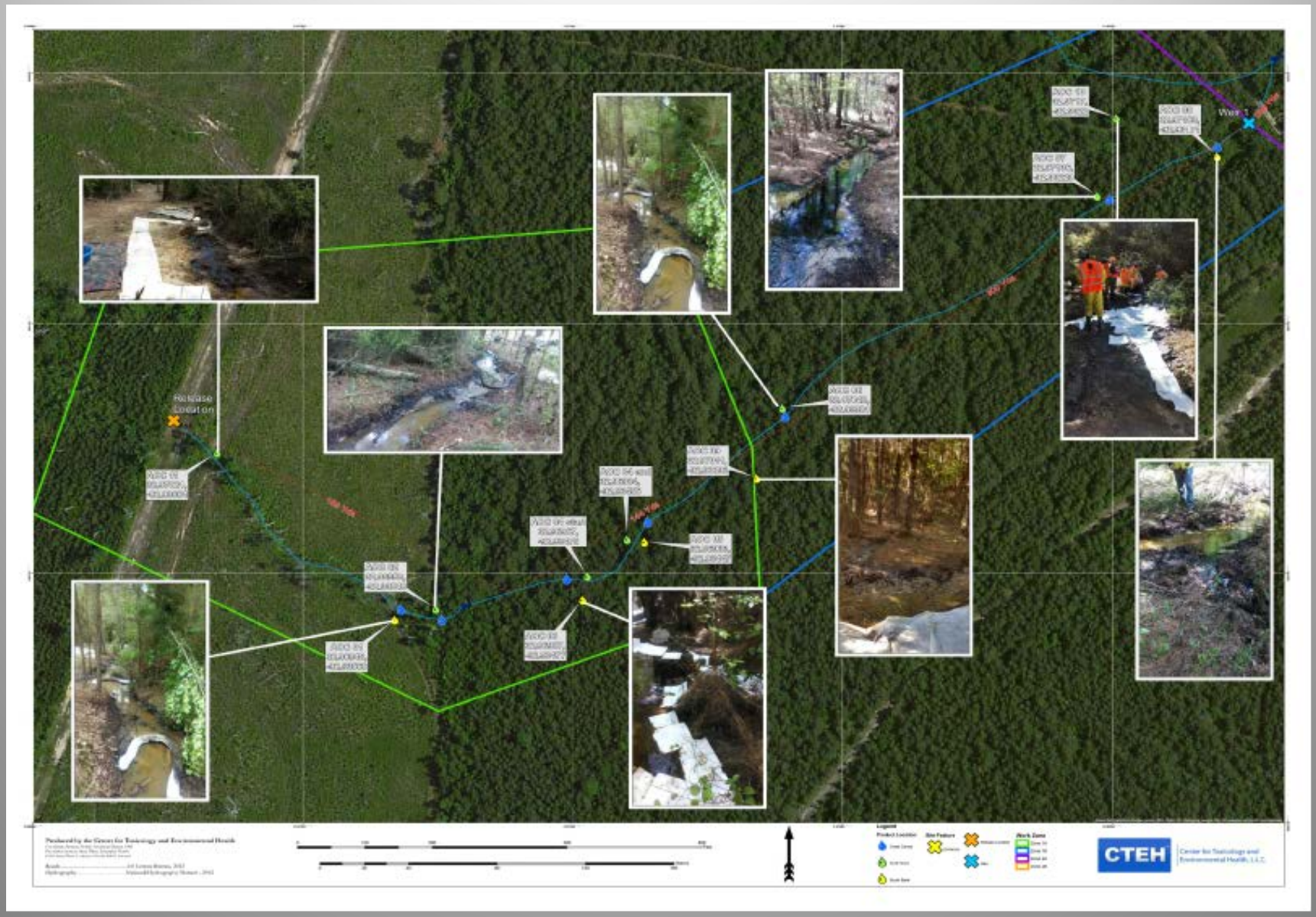
Chemical ER Best Practices: Situational Awareness

- Aerial imagery
  - Response documentation
  - Resource tracking
- Web-based data portals
- Response management software

Quadcopter Aerial Imagery

- Average Flight Time: 10-12 minutes
- Flight Ground Coverage: 0.25 square miles
- Auto Home Navigation safety feature

SITUATIONAL AWARENESS



Why go to such efforts?

- Address stakeholder concerns
- Timely and effective risk/crisis communications
- Document the negative
- Increase transparency/trust with regulators and public through data
- Delineate actual versus perceived or alleged impact
- Provide data/information for addressing claims
- Provide overwhelming valid, defensible data for regulatory and legal objectives

Hot Topic:
Crude Oil Transport

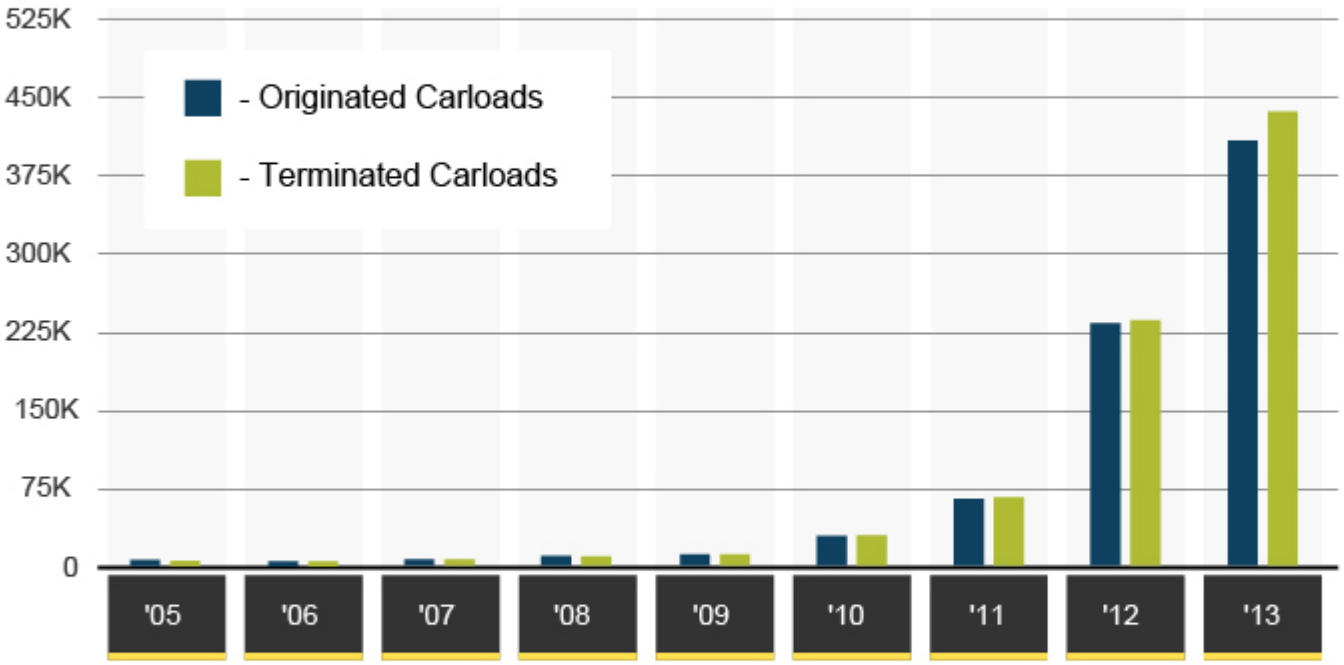
Crude by Rail

Crude by Pipeline

Crude by Ship/Barge

ORIGINATED CARLOADS OF CRUDE OIL VS. **TERMINATED CARLOADS** OF CRUDE OIL

ON U.S. CLASS I RAILROADS

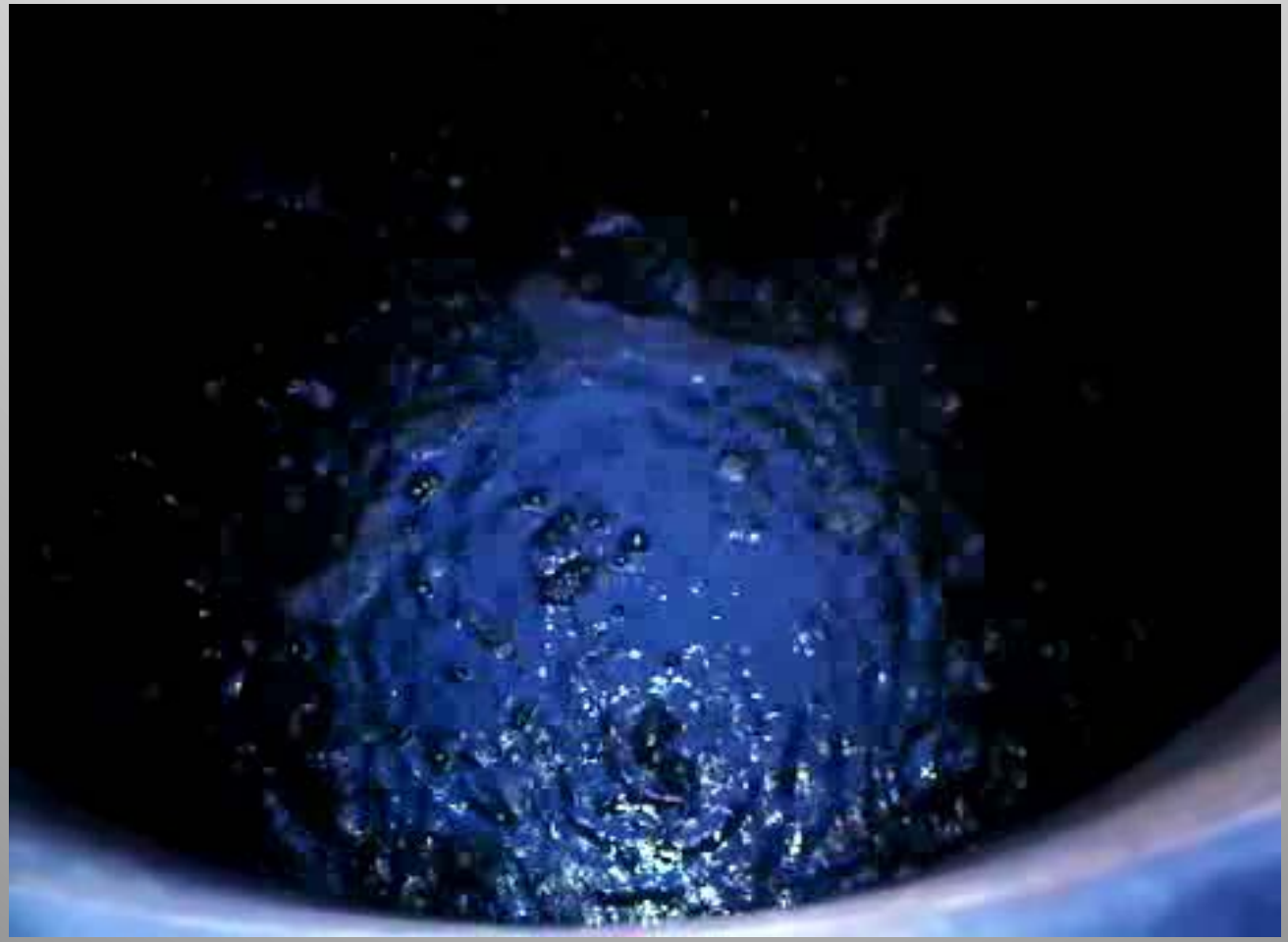


*Estimate based on preliminary data

Source: AAR, FRA

ASSOCIATION OF AMERICAN RAILROADS

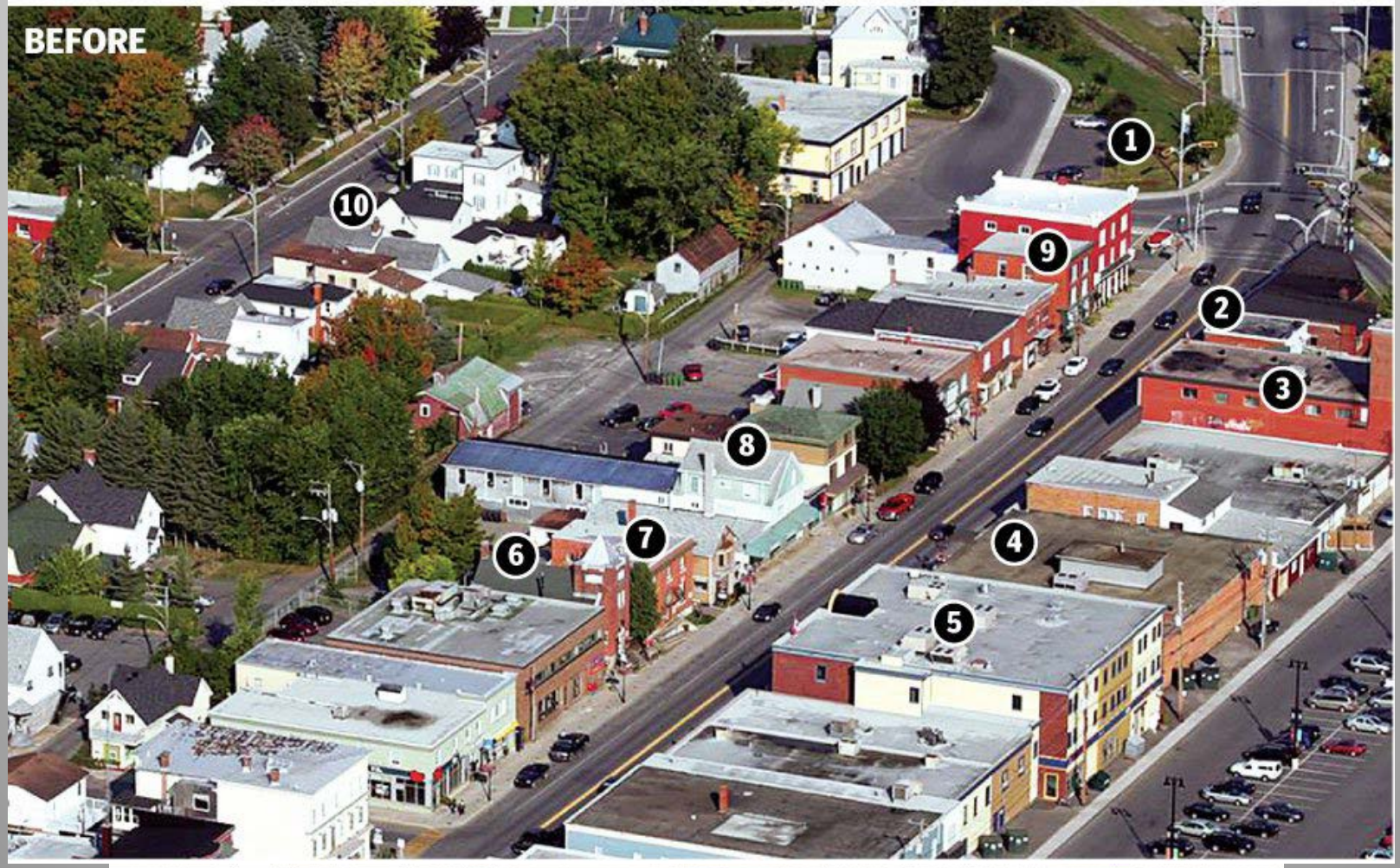
Bakken Shale Crude Oil



Casselton, ND

Lac Megantic, Quebec

LAC-MÉGANTIC: BEFORE AND AFTER



1. The railroad

2. The Musi-Café, a popular watering hole that was busy at the time of the explosions

3. The library

4. The former site of a Dollarama store

5. A commercial building

6. An old chapel that housed a restaurant-bar

7. A Bank of Montreal location

8. A stationery store

9. A gift shop called "l'Ambrequin"

10. A residential area near the Boulevard of Veterans

SOURCE: LA PRESSE

PHOTOS: YVES TREMBLAY / PHOTO HELICO, RYAN REMIORZ / THE CANADIAN PRESS
GRAPHIC: ALEXANDRA BOSANAC & JONATHON RIVAIT / NATIONAL POST

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Lac Megantic

The first two weeks…

- Lac Megantic was in shock
  - Emotionally charged areas surrounding site
  - Difficult to get the right resources in place to start recovery
- Many response resources were idle for several days

Incident Challenges

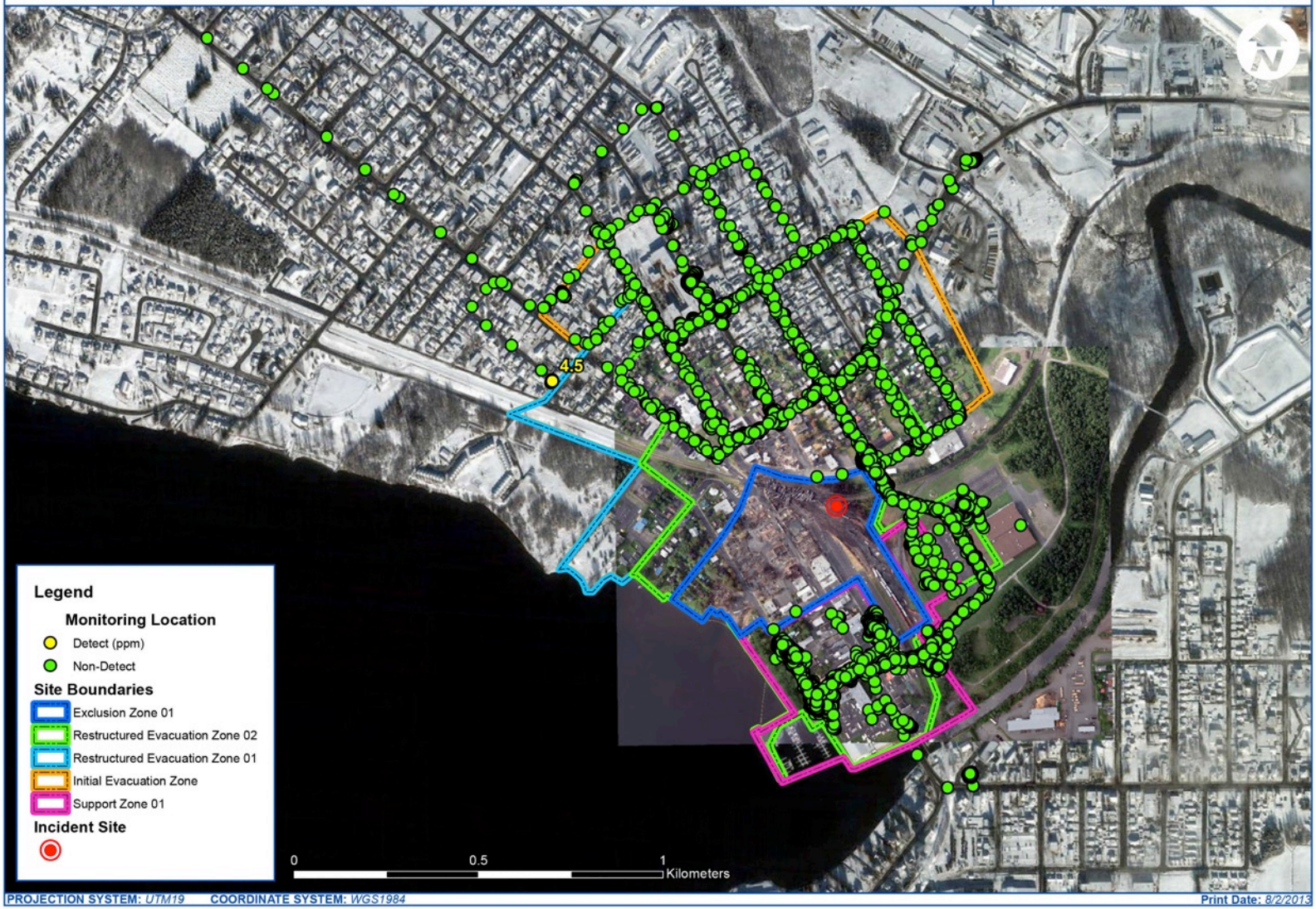
- 63 railcars involved
- No additional release or spill of crude oil or firefighting water/foam allowed
- Foam application before moving each car
- No torches
- High benzene concentrations when digging or dragging
- Limited confined space entry capabilities for tank car decontamination

Lac Megantic Wrecking Ops

More Issues…

- Interactions with regulatory agencies regarding wrecking operations
- Action limit for ½ face APR = 0.5ppm benzene and 25 ppm VOC. Full face required over 5 ppm benzene.
- Respirator supply and fit testing for wreckers
- Where to put 63 scrap tankcars?

Lac-Mégantic Derailment



Lessons Learned

- Preparedness and prior relationships are crucial.
- Tact is essential in emotionally charged situations.
- Respiratory hazards produce heightnened concern.
- To let it burn or not to let it burn? That is the question.
- Crude by rail safety- is there an answer?

Questions?

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