Magellan Midstream Partners Tank Fire

June 2008

Katy Miley
Federal On-Scene Coordinator
U.S. EPA
Region 7

One Stormy Night in Kansas City

- 7:30 p.m., June 3, 2008
- Magellan terminal in Kansas City, KS
- Lightning strike caused large fire at a storage tank containing 1.2 million gallons of unleaded gasoline
- Smoke plume visible across Kansas City metro
- Intense public interest and alarm
- Required RP, local responder and EPA coordination
- Media information at a premium

Presentation Objectives

- Discuss the EPA response timeline
  - Transition to RP lead
- Review monitoring data
- Overview data assessment
- Discuss public information challenges

Response Timeline June 3rd

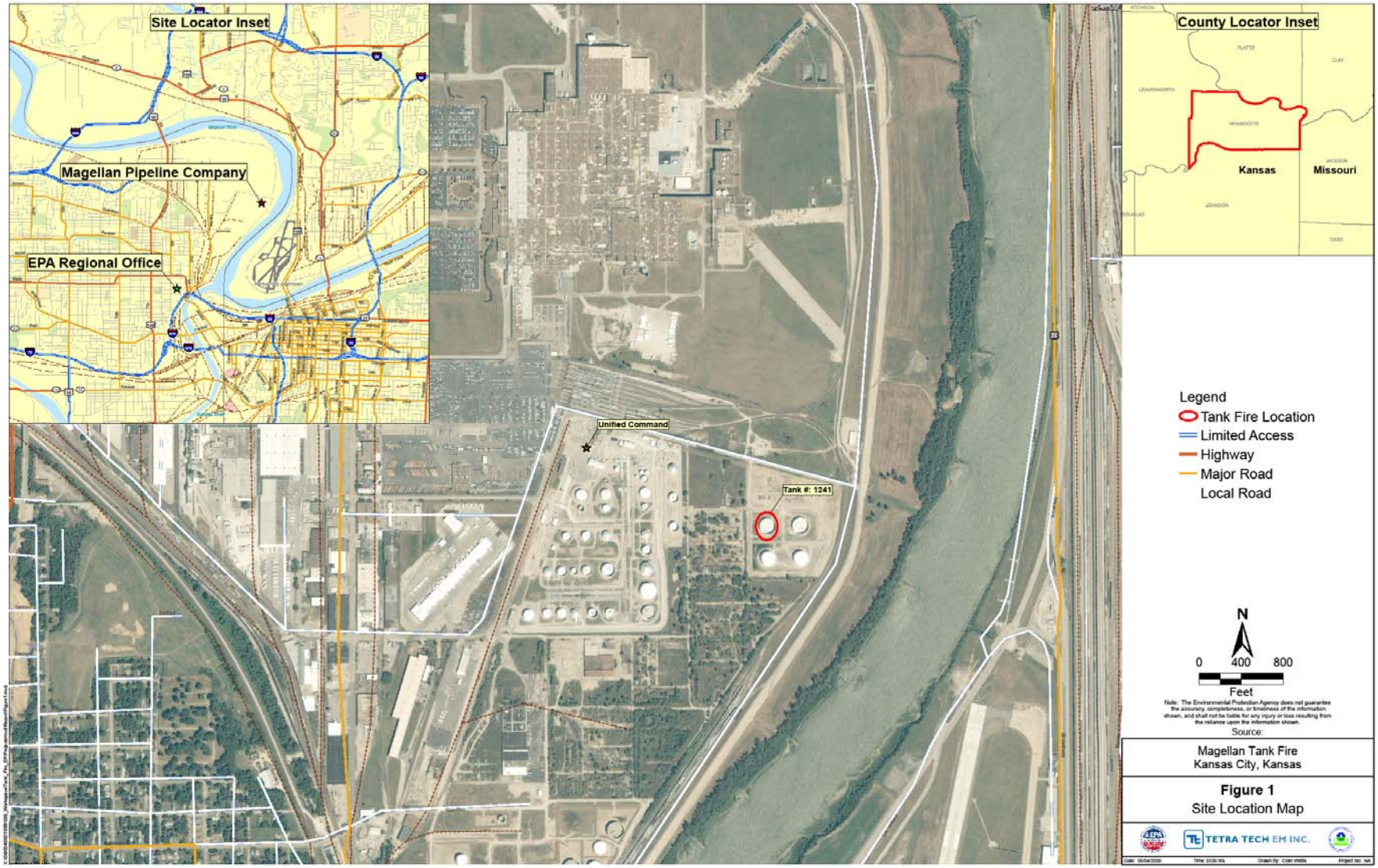
- 7:30 pm – EPA Region 7 spill line notified
- 8:30 pm – EPA OSC and START onsite
- 9:00 pm – Magellan local on-call environmental contractors onsite
- 9:45 pm – EPA led planning meeting on air monitoring process, locations, and teams
- Magellan FRP maps used
  - Monitoring teams
    - EPA OSCs/EPA START/RP Contractors
- 11:00 pm –Air monitoring began

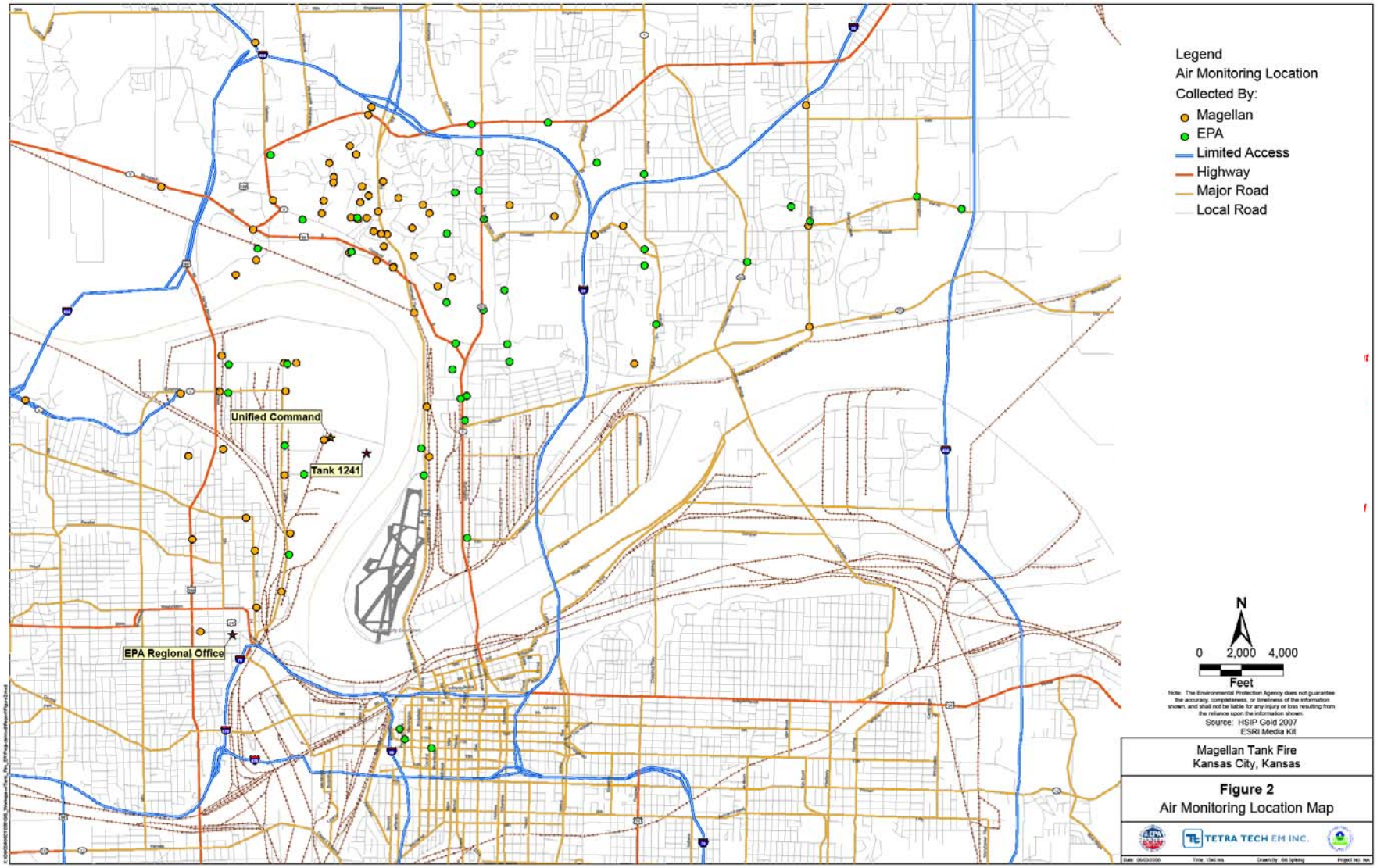
Response Timeline June 4th

- 4:00 am - RP's large scale monitoring response contractor on-site
- 5:00 am
  - Initial monitoring data consolidated
  - Air monitoring transitioning to RP
- 7:00 am - Joint EPA/FD/RP live feed television press conference
- 9:00 am – EPA START demobilized, new OSC on-site for second shift

Real-Time Air Monitoring

- MultiRae Plus multi-gas monitor with PID
  - VOCs
  - CO
  - H_2S
  - O_2
  - LEL
- MIE DataRAM 4
  - PM 10
  - PM 2.5
- Draeger Chip
  - benzene





Monitoring Results – First 24 Hours

- Benzene: Non Detect
- CO: Non Detect
- H_2S: Non Detect
- LEL: Non Detect
- O2: 20-20.9 %
- VOC: 0-3.7 ppm
- PM 10: 10-385 ug/m^3
- PM 2.5: 5.2-169.2 ug/m^3

What Do the VOC Results Mean???

- VOC results (0-3.7 ppm)
  - Compared with BTEX 8 hour AEGLs
  - Benzene: 9 ppm
  - Toluene: 200 ppm
  - Ethyl Benzene: 3 ppm
  - Xylene: 130 ppm
- Region 7 currently uses benzene (carcinogen) for VOC comparison
- Additional surrogates for petroleum VOCs are being assessed
- 1/140 results exceeded any BTEX AEGL
  - 3.7 ppm, 4 hours after fire started, not repeated

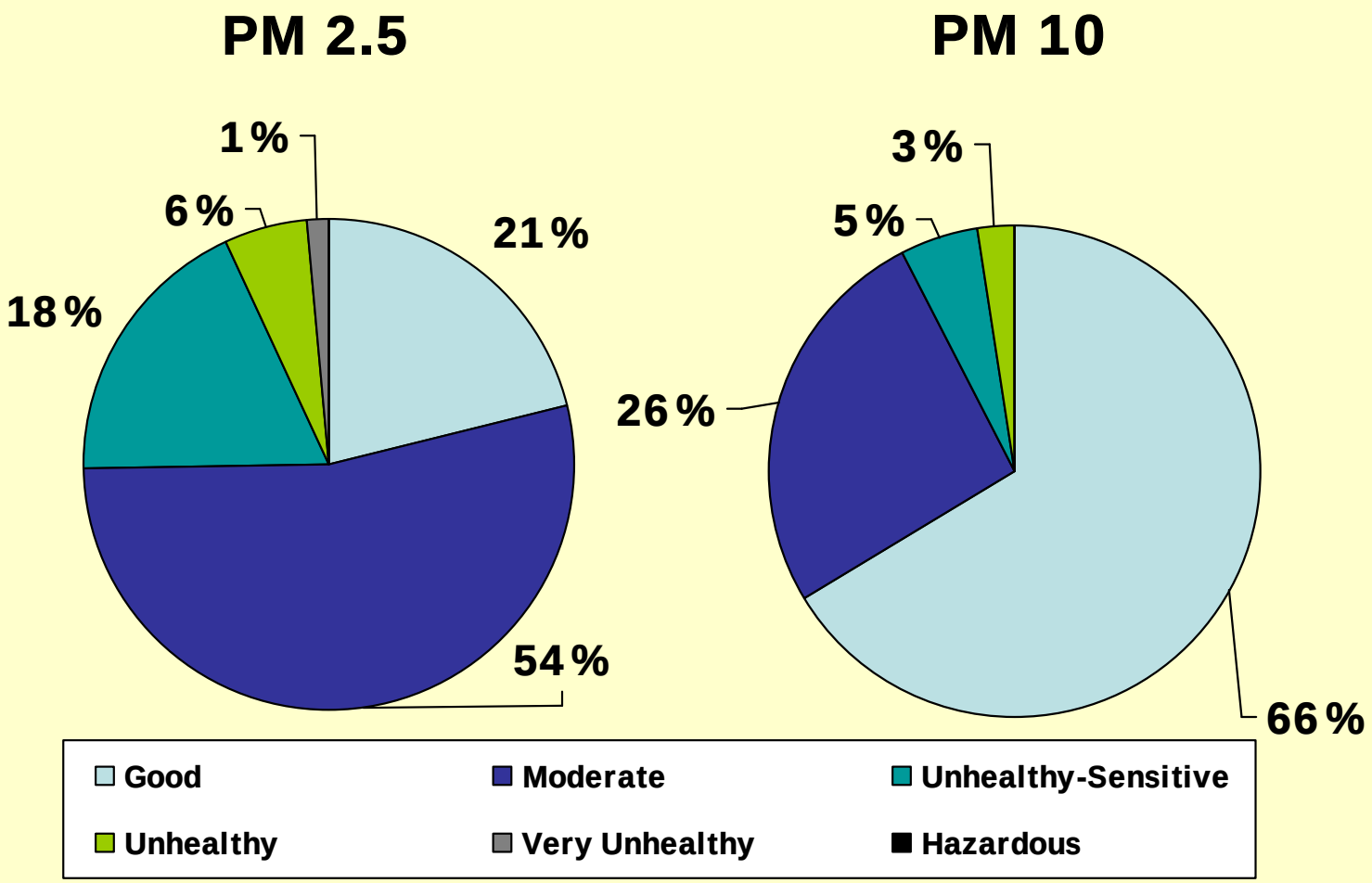
What do the PM Results Mean?

- PM 2.5: Smaller inhalable particulates(≤2.5 um)
- PM 10: Larger fraction particulates (≤10 um)
- EPA Air Quality Index (AQI) assigns category values for 24 hour exposures
  - Good
  - Moderate
  - Unhealthy-Sensitive Groups
  - Unhealthy
  - Very Unhealthy
  - Hazardous

What do the PM Numbers Mean?

AQI	PM 2.5 (ug/m³)	Number of PM 2.5 Data Points	PM 10 (ug/m³)	Number of PM 10 Data Points
Good	0-15.4	15	0-54	53
Moderate	15.5-40.4	38	55-154	21
Unhealthy-Sensitive	40.5-65.4	13	155-254	4
Unhealthy	65.5-150.4	4	255-354	2
V. Unhealthy	150.5-250.4	1	355-424	
Hazardous	>250.5		>425	

Air Quality Index Comparisons



Response Timeline June 5th

- Fire still smoldering
- Minimal smoke plume
- RP contractor continued monitoring and sampling
- Fire declared out at 10:30 pm
- Fire burned >48 hours

From EPA to RP Lead

- Initial 12 hours
  - EPA lead air monitoring with RP contractors assisting
    - Air monitoring followed smoke plume and northern arc
    - Benzene, CO, H_2S, LEL, O_2, PM10, PM2.5, VOCs
    - Real-time monitoring data used at press conference
- Final two days
  - Transition from EPA lead to RP lead during the morning of June 4
  - RP DQO's and sampling protocols submitted to EPA
  - Monitoring and sampling data submitted to EPA

Continued Monitoring and Sampling

- RP contractor conducted real time monitoring, air sample collection, and wipe sampling
  - Air monitoring in smoke plume and arc north of fire
  - Mini can sampling of set locations around site perimeter and north
    - PAHs, aldehydes, benzene, VOCs
      - Analytical results were consistent with monitoring data
    - Wipe samples of playground equipment for PAHs
      - ND
- Data Summary
  - > 48 hours of monitoring and sampling
  - Some health based risk levels were exceeded for particulates, VOCs
  - Many elevated readings were directly in plume, near fire
  - Elevated readings were not sustained

Response Timeline June 6

- The aftermath
- RP contractor ceased sample collection and monitoring at ~ 3:30 pm
- RP began assessing damage
- EPA OSC demobilized

The Media

- Joint EPA/FD/RP live feed television press conference
  - 7:00 am June 4 ~ 12 hours after the fire started
  - EPA reported on real time data collection
    - Field data from START, EPA OSCs, RP
    - Very little time to collate and assess data
    - Minimal access to regional air program/toxicologists for advice in the middle of the night
    - Necessary to simplify discussion of data and clarify health risks to ensure message to public

OSC Challenges

- Lack of sleep
- Rapid turnaround of field monitoring data
- Need for support personnel to collate data and assist with interpretation
- Need for a consistent message and open communication with RP and local responders
- Importance of field personnel knowing levels of concern when collecting monitoring data
- The press