

Sampling and Monitoring in Emergencies and Disasters

Before

During

After

Before



...and After





Fire Response



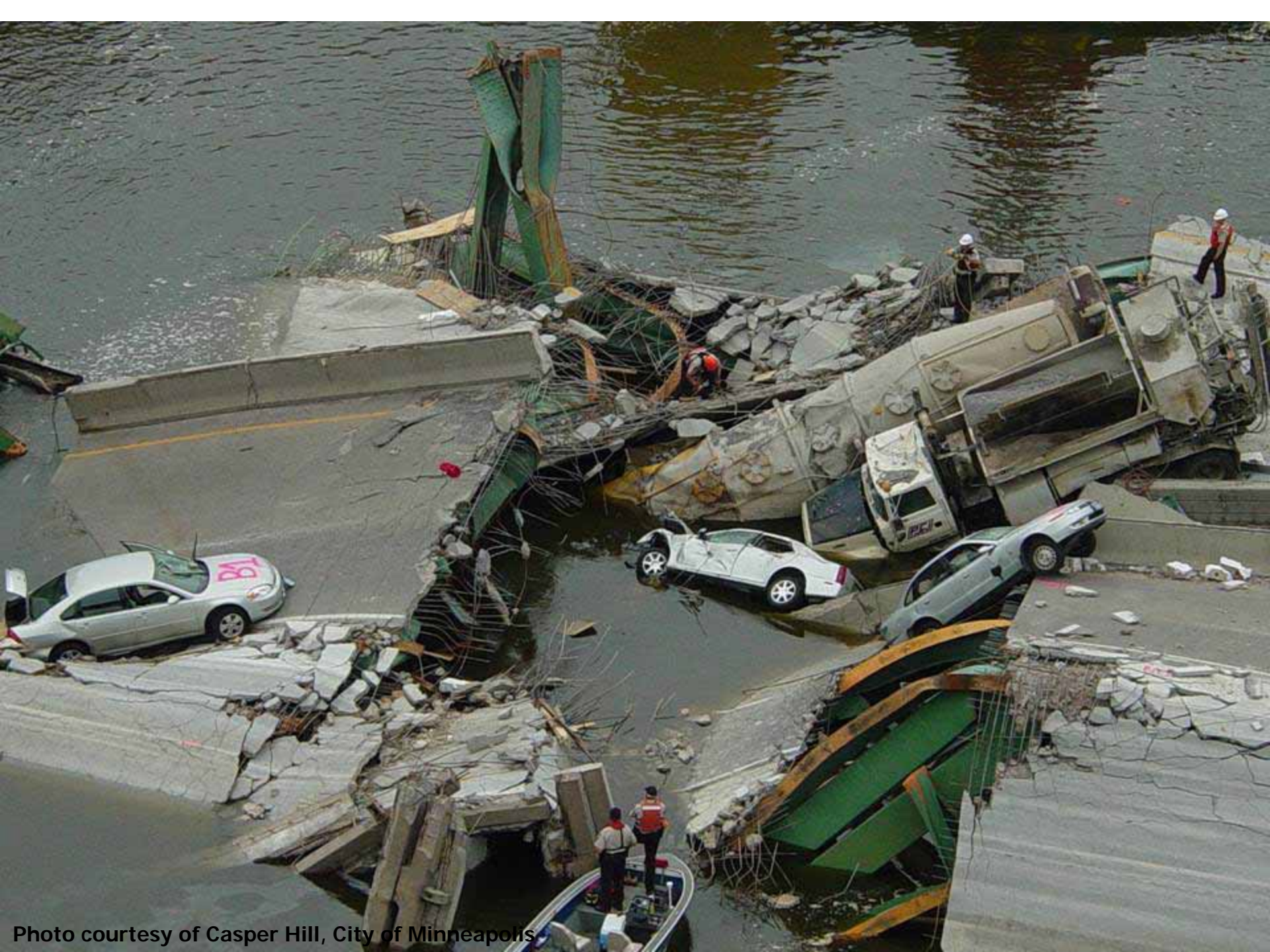


Photo courtesy of Casper Hill, City of Minneapolis



08/03/2007

Photo courtesy of Sonia Vega, USEPA



Photo courtesy of Casper Hill, City of Minneapolis



I-35W Collapse

MPCA Initial Involvement

- Is an oil tanker under the water?
- Are the crushed railcars a hazard?
- State EOC activation
- Public Information- multiple issues

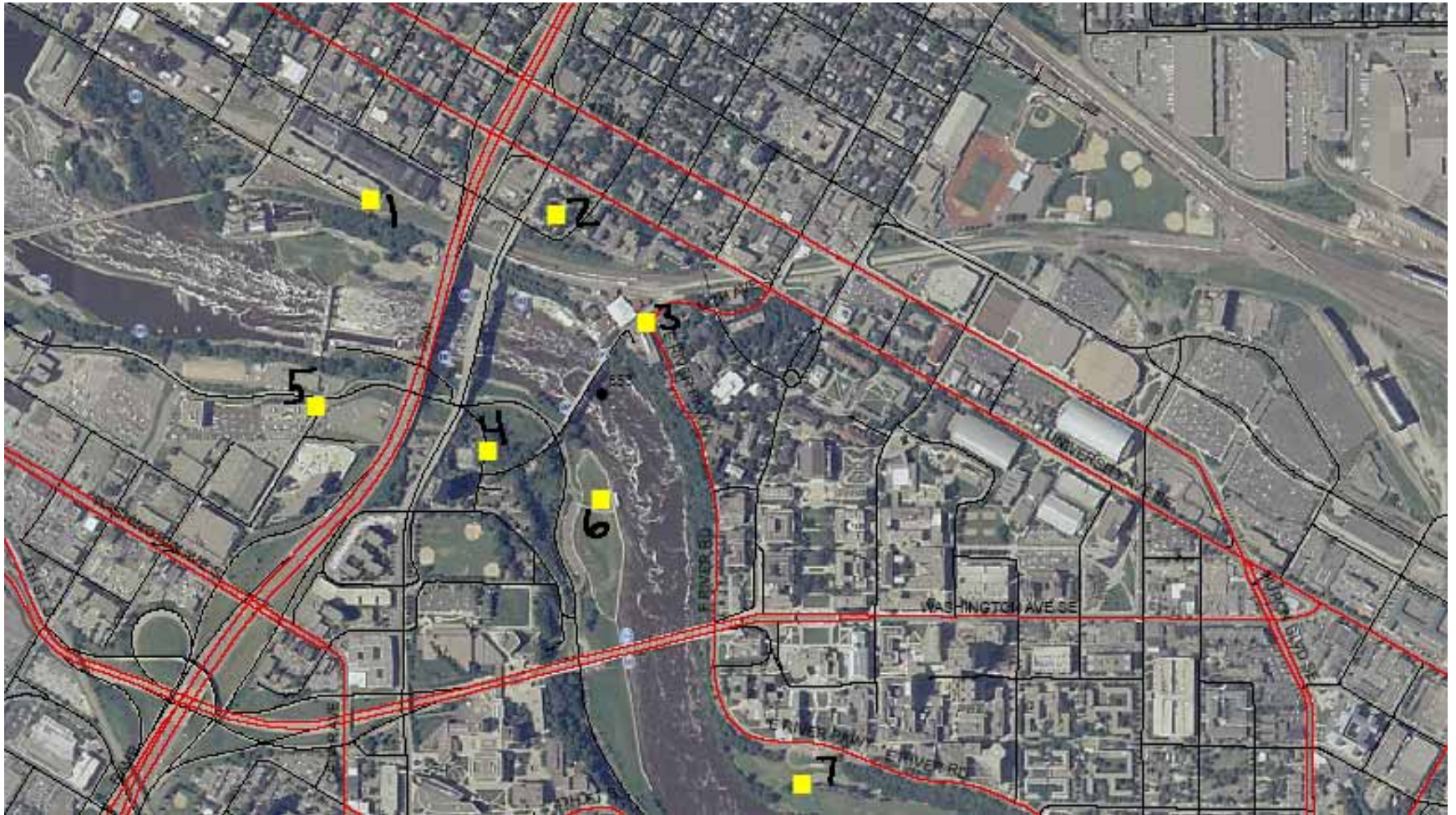
Environmental or Health Hazards from the collapse or demolition?

- Neighborhood air monitoring- EPA with MPCA, MDH, Mpls review
- Downriver water monitoring- watershed with MPCA, MDH, Mpls review

Emergency Monitoring

- Purpose of the effort
- Will data drive response, or document situation
- What to sample/monitor for?
- What are the magic numbers?
- Equipment and staffing
- Turnaround time
- Methods and detection limits
- Quality
- Background, other sources, etc.
- Explaining the results

Air stations



EPA Monitoring, with START Contractor

- Second day
- Three days, during recovery operations
- Five days, during demolition operations

EPA sampling, MPCA and MDH review, City web page presentation

- VOCs
- Asbestos
 - In air
 - On surfaces, in materials
- Metals
- Particulates
- Silicates

EPA's Air Monitoring Results

- Air generally similar to urban ambient air
- Several ambient standards violations for particulates
- No levels of major concern detected
- Monitoring supported the worker safety efforts, and the dust suppression efforts
- Some public interest so far, satisfied that monitoring had been done
- Thanks Sonia !

Water stations

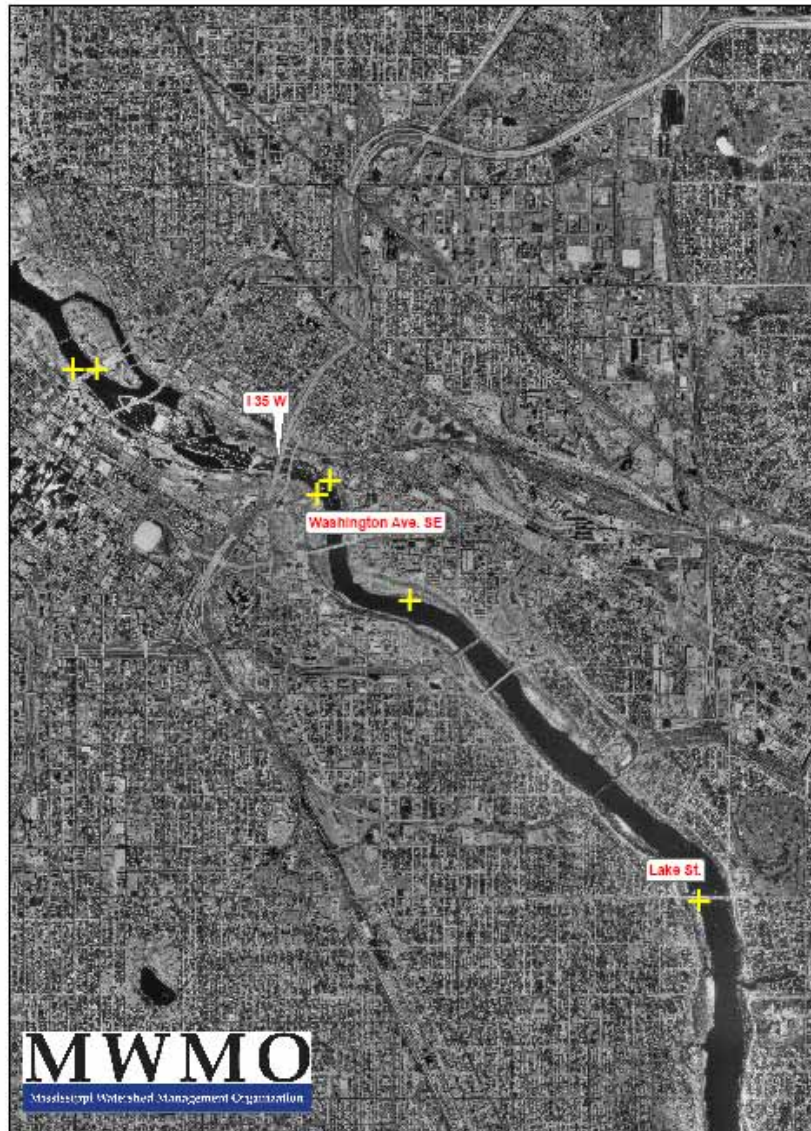


Figure 1. N 0.5 Legend

Mississippi River Watershed Organization, MPCA/MDH review

- Routine sampling continued, enhanced
- Additional concern with bridge material, or disturbed sediments.
- Water standards exceeded for fecal coliform

- Metals – Total and Total Soluble, including: lead, chromium, zinc, nickel, cadmium and mercury
- Hardness
- Oil and grease
- Polyaromatic Hydrocarbons and Volatile Organic Compounds
- Suspended Solids – Total and Volatile
- Suspended Solids
- Total Dissolved Solids
- PCBs (only when removal and construction activities warrant it)
- Dissolved oxygen
- Conductivity and Specific conductivity
- Salinity
- Temperature
- pH
- Transparency

Demolition

- When released by NTSB and recoveries done
- Asbestos concerns?
- Brownfields and sediment concerns
- Remove investigation steel to down-river flats
- Break and crush concrete on site
- Truck non-investigation steel to recycler
- Major gas, electric, communications lines

Debris Site



Demo management advice from NY and Oklahoma City

- Coordination with investigators
- Sensitivity with bodies
- Document conditions before moving debris
- Sorting and staging area selections
- Carefully plan haul routes and methods
- Minimize double-handling
- Public viewing and safety

The Real Work of Emergency and Disaster Management

1. Preparing for involvement
2. Activating & organizing the response
3. Managers and supervisors allowing and supporting the work
4. Handoffs and follow-up

Are we prepared for?

- Metro tornado
- Big fire at big landfill
- The big feedlot rupture
- Foot and Mouth Disease, a million cows
- Nuclear plant incident, disposal of all the hay and milk and groceries from several counties

- Pigs Eye plant rupture
- Refinery or plastics plant fire
- Next spring's flood and tornado season
- Rad/Bio/Chem terror debris
- Tailings basin rupture
- HF release from Chemolite or refinery
- Exotic chemical in a big town water supply
- Etc
- ?