

# Air Monitoring at Chicora Elementary School

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# Why?

- USA Today Story (The Smokestack Effect)
- EPA's Assessing Outdoor Air Near Schools project
- DHEC Study



# USA Today Story



- Evaluated air toxics impacts on schools from point sources.
- Point source data from EPA's 2005 Toxic Release Inventory (TRI).
- Used EPA's Risk-Screening Environmental Indicators (RSEI) Model to evaluate impacts.
- Included some limited air toxics monitoring.
- Ranked schools across the U.S.

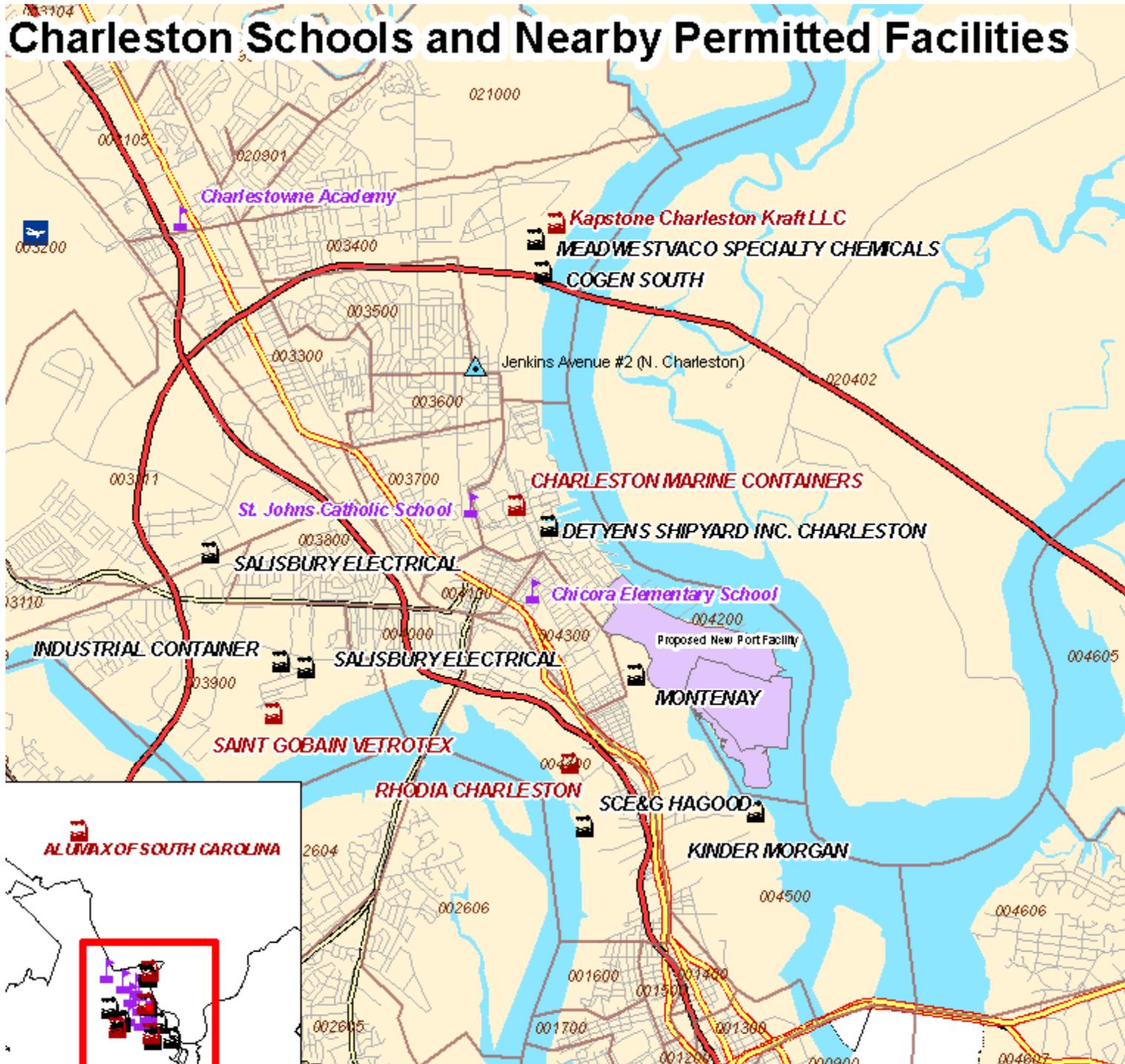
# EPA's Air Toxics Project

- Partnerships with states to monitor for air toxics in outdoor air around schools.
- Included 63 school across the U.S.
- Used 2002 NATA and other tools.
- No schools in South Carolina were included in the original list – Chicora Elementary School in North Charleston was added.

# Other Partnerships

- Existing relationships with neighborhoods and community groups around the school.
  - Previous work on Superfund cleanup and Port expansion.
  - High level of trust already existed.
- Formed a Partnership with industries, school district, and community representatives.
  - Provided a forum to share information on the project.
  - Helped in building a relationship with the principal at Chicora Elementary
  - Worked together to obtain a DERA grant to retrofit school buses

# Charleston Schools and Nearby Permitted Facilities



-  Air Monitoring Station
-  Charleston Port
-  Sites ID'd in USA Today R
-  Other TV facility
-  School
-  Census Tracts 2000
-  Airports (Local)

**Local Streets (Local)**

**Road Classification**

-  Limited Access Freeway
-  Highway
-  Secondary Roads
-  Local Road
-  Minor Road
-  Lakes (Local)
-  Parks (Local)
-  States (Local)

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This map is a product of DHEC. Reasonable efforts have been made to ensure the accuracy of this map. DHEC disclaims any liability regarding this map.  
Map created: 9/8/2010 tjf



# DHEC Plan

- Evaluated actual reported 2005 emissions inventory data from point sources.
  - State authority to collect HAP data
- Used AERMOD to model the combined data.
- Produced maps with the data to evaluate most impacted areas (schools)

# Type of Sampling

## Monitors

- Metals (PM 10)
- Chromium +6
- Formaldehyde (Carbonels)
- VOCs



10 to 13 Samples over ~ 60 days. (The sampling extended into the school year)

# Monitored Pollutants

- 1,3 butadiene
- Acetaldehyde
- Benzene
- Hexavalent Chromium
- Manganese
- Nickel

# Additional State Sampling

- Add Additional Site
  - Jenkins Ave. (Fire Station)
  - Howard Heights
- Co-located samplers at Chicora Elementary

Additional sampling expanded our evaluation into the neighborhoods around the school.

# Jenkins Ave.

- High Vol. PM10 for metals
- Chromium +6
- Carbonels
- VOC's



## Chicora Elementary (DHEC Sampling) & Howard Heights

- High Vol. PM 10 for metals
- VOC's at the school to help troubleshoot problems with EPA's samplers.



# Problems with Samplers

- Sampling was originally scheduled to begin by in Spring 2009 and be completed within 60 days.
- Due to problems with the samplers, sample collection did not begin until July 2009.
- Additional problems with samplers and analysis pushed the project into early 2010.



# Results

- No samples exceeded EPA's short term screening levels.
- Concentrations were similar to those seen in other urban areas.
- Results available on EPA's website at: [www.epa.gov/schoolair](http://www.epa.gov/schoolair) & SCDHEC website at: [www.scdhec.gov/environment/baq/NorthCharleston](http://www.scdhec.gov/environment/baq/NorthCharleston)

# School Involvement

- Worked with the school to get the students involved.
  - DHEC participated in a Reading Day and showed the students the sampling equipment.
  - Spent time with a 3<sup>rd</sup> grade class.
- Used our relationship with the school to get information on the project to parents and the community.
  - Shared information on the project at PTO meetings.
  - The school included information about the project in their newsletter.

# EPA Visits

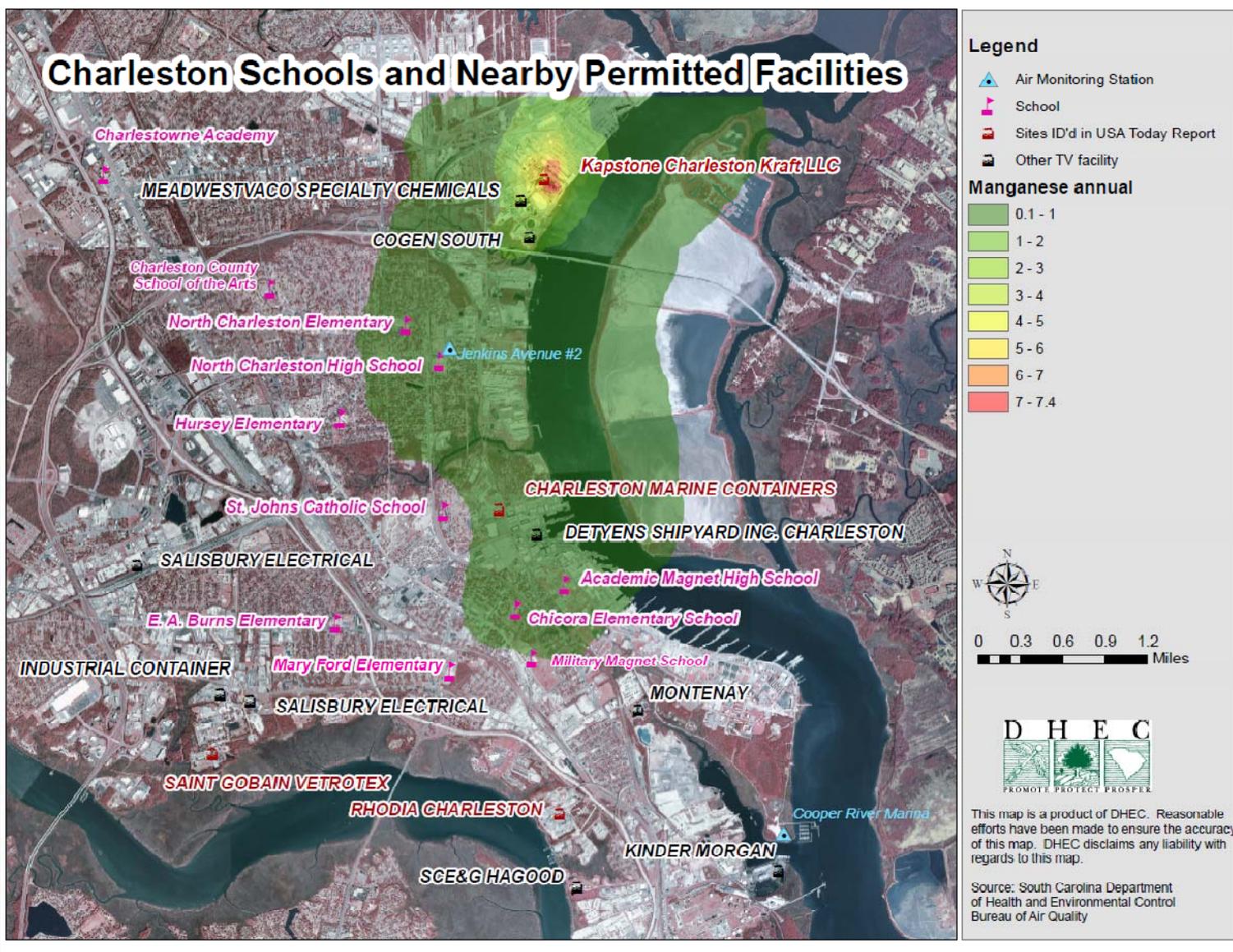


EPA Assistant Administrator Gina McCarthy met with Chicora Elementary School officials in February 2010.



EPA Administrator Lisa Jackson met with students at Chicora Elementary in April 2010

# Map from DHEC Evaluation



Questions?