

# Radiological Dispersion Devices: Urban Pathway Analysis – Challenges and Issues

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# As the Cloud Moves Down Wind



Radioactive material is deposited as fallout.

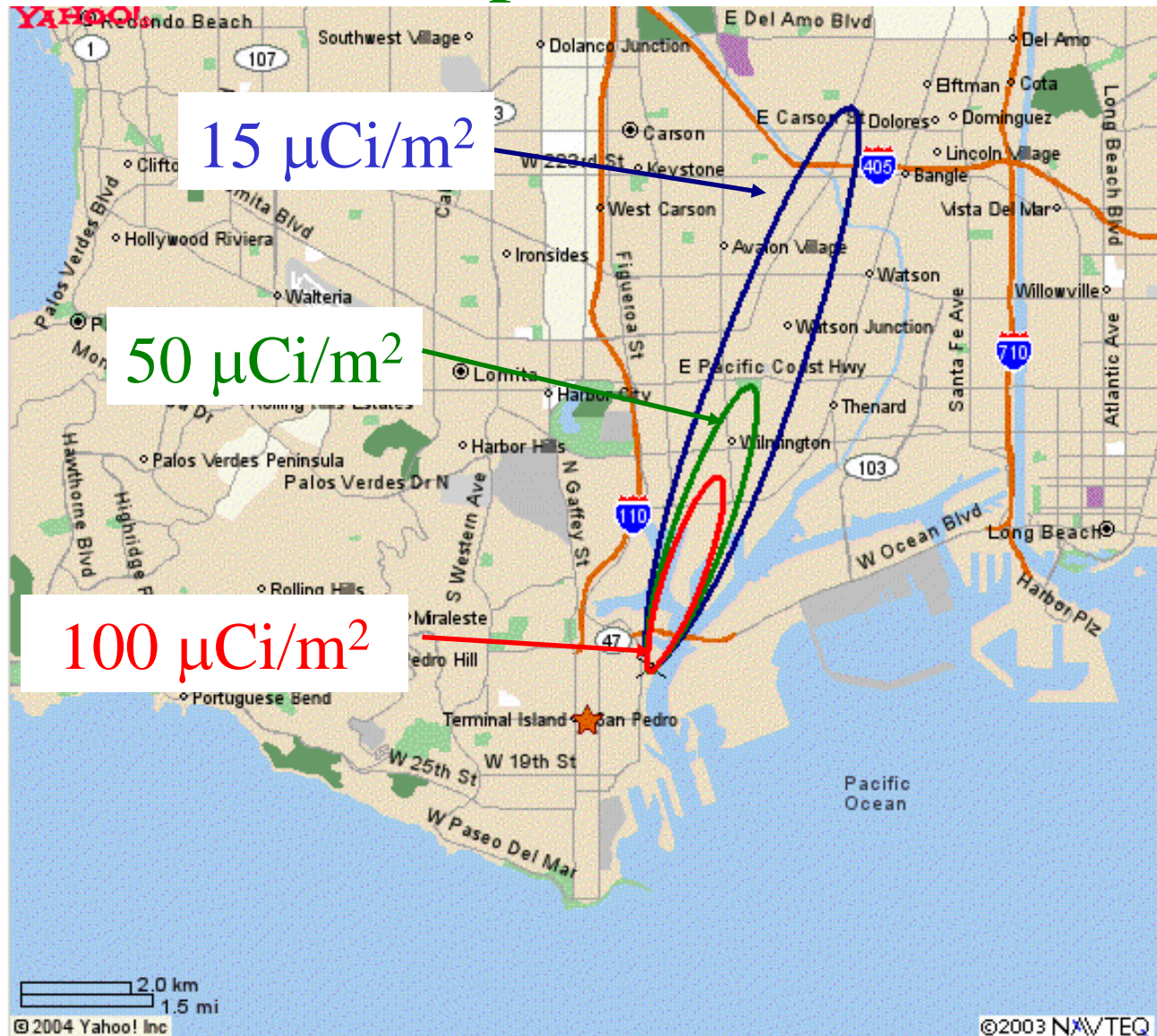
# Environmental Radioactive Material

- Fallout can move through the environment by a number of processes.
- Human intervention
  - Tracking
  - Cleanup
- Natural Processes
  - Wind
  - Water
  - Fauna

# Rural Pathways

- Nuclear Power Plants
- Well characterized
- Factors such as uptake by flora and fauna are well known.
- Classic pathway of air to feed plants to cow to milk to humans is well studied.

# RDD Deposition Track



# First Challenge

- What is in the deposition track?
  - What lives there?
    - Humans
    - Animals
    - Plants
  - Terrain?
    - Water
    - Buildings
    - Sewers and flood drains

# Second Challenge

- How can this material move outside of the deposition track?
  - Metrology
  - Water movement
  - Tracking
  - Animals

# Third Challenge

- How can this material end up inside people? Or what are the pathways?
  - Food production
  - Food distribution
  - Water use
  - Rain



# Fourth Challenge

- Characterize the pathways
  - How much radioactive material is taken up by each link in the pathway.
  - How much can end up in humans.
  - What are the calculated doses.
  - Sampling and testing (environmental monitoring).

# Response Issues

- What ingestion pathways will be affected?
  - Community gardens.
  - Food processing plants.
- What needs to be shut down?
  - What levels of contamination?
  - What will be affected?
- How will remediation operations affect the environment?
  - Clearing of vital roadways.

# Recovery Issues

- Until cleaned up, radioactive material will continue to circulate through the environment.
  - Environmental Monitoring.
  - Getting stuff back on line.
  - Rain or Mother Natures Decontamination Plan.

# Concluding Remarks

- Characterization of the urban environment for environmental radioactivity issues is critical.
- Some of the rural data is applicable.
- Lots to do and see!
- Questions