

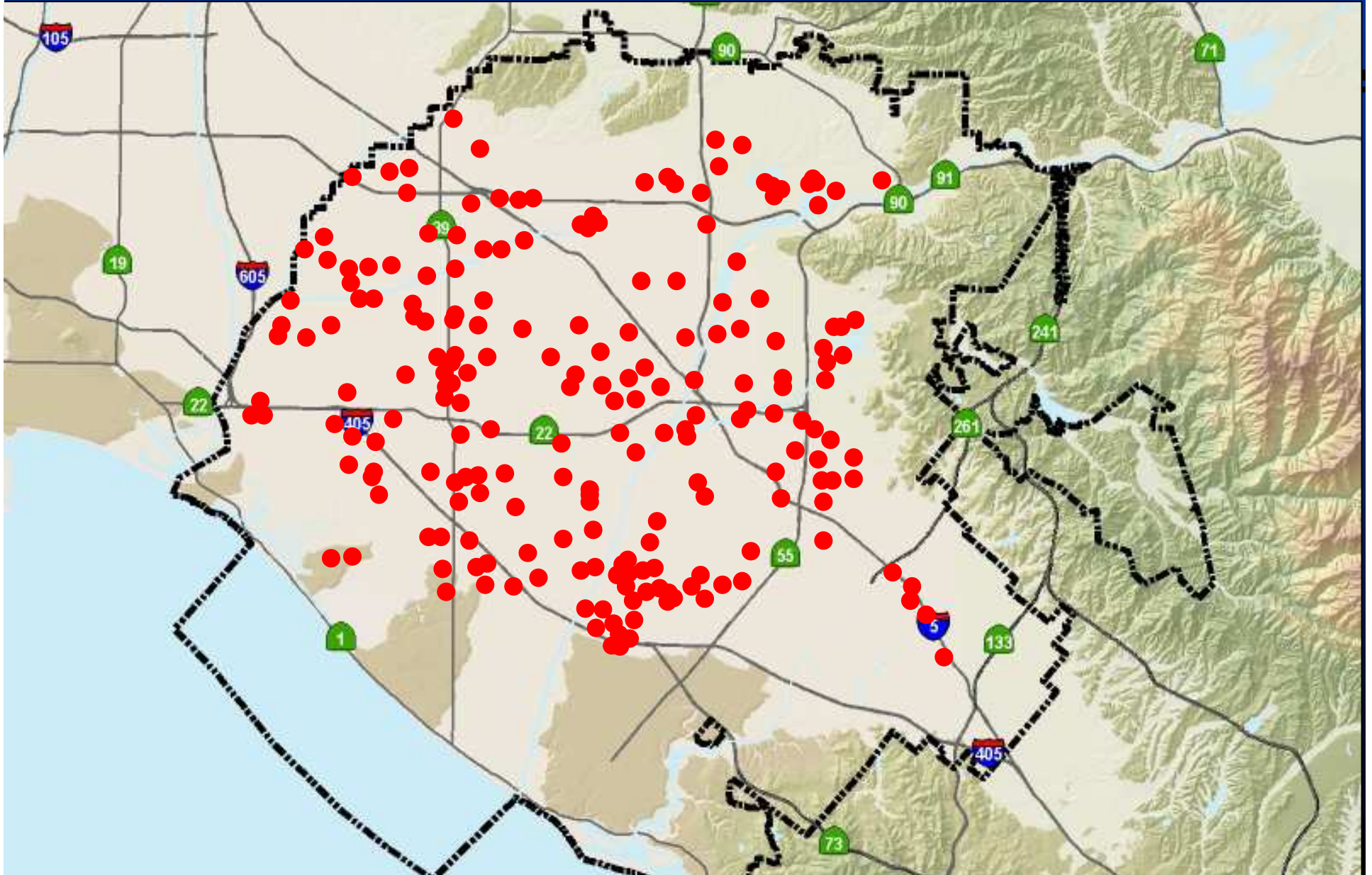
Cleaning Up Someone Else's Plume

Orange County Water District's North Basin Groundwater Protection Project

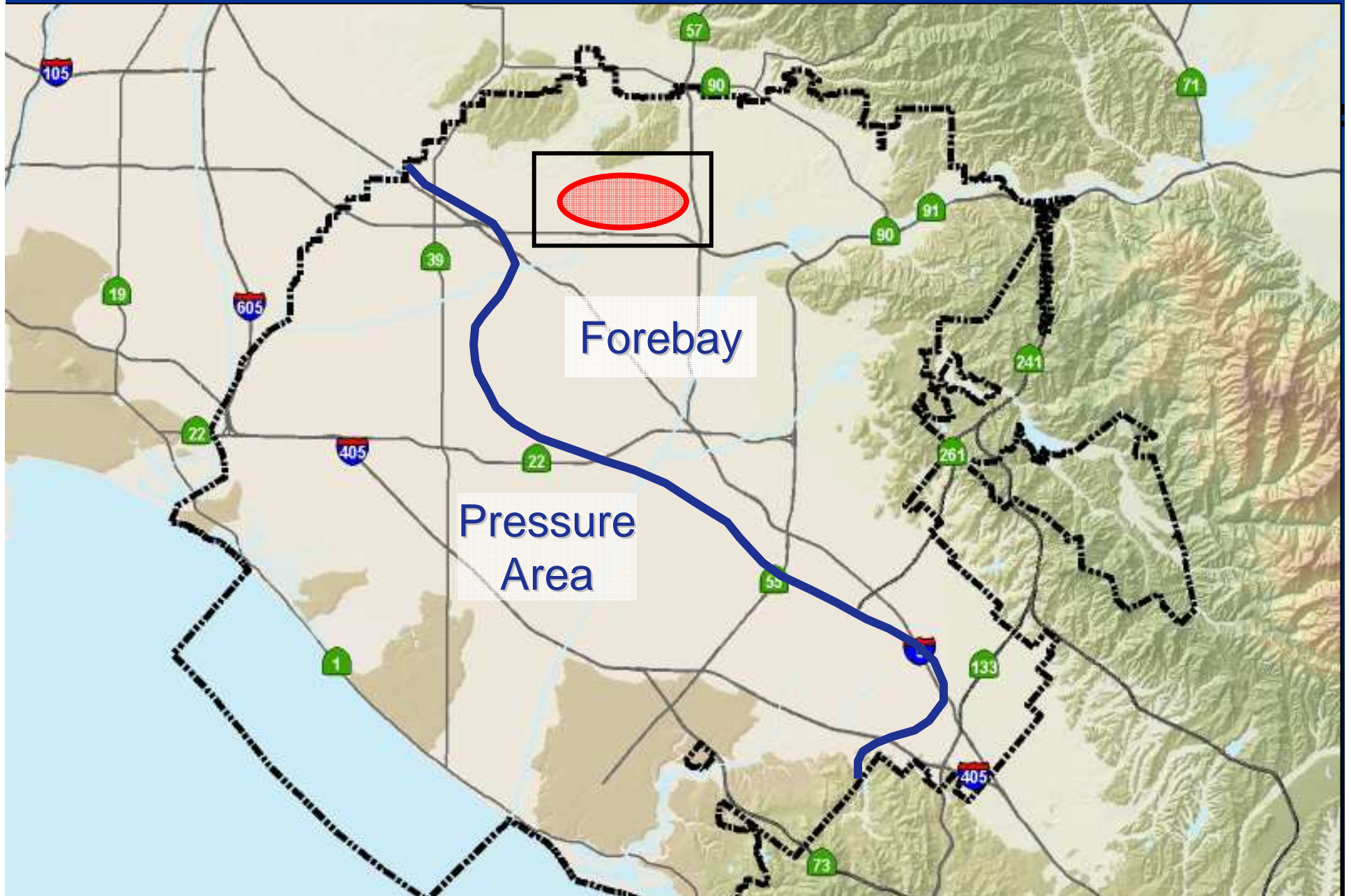
Roy Herndon
Orange County Water District

Geological Symposium, Sacramento, May 2008

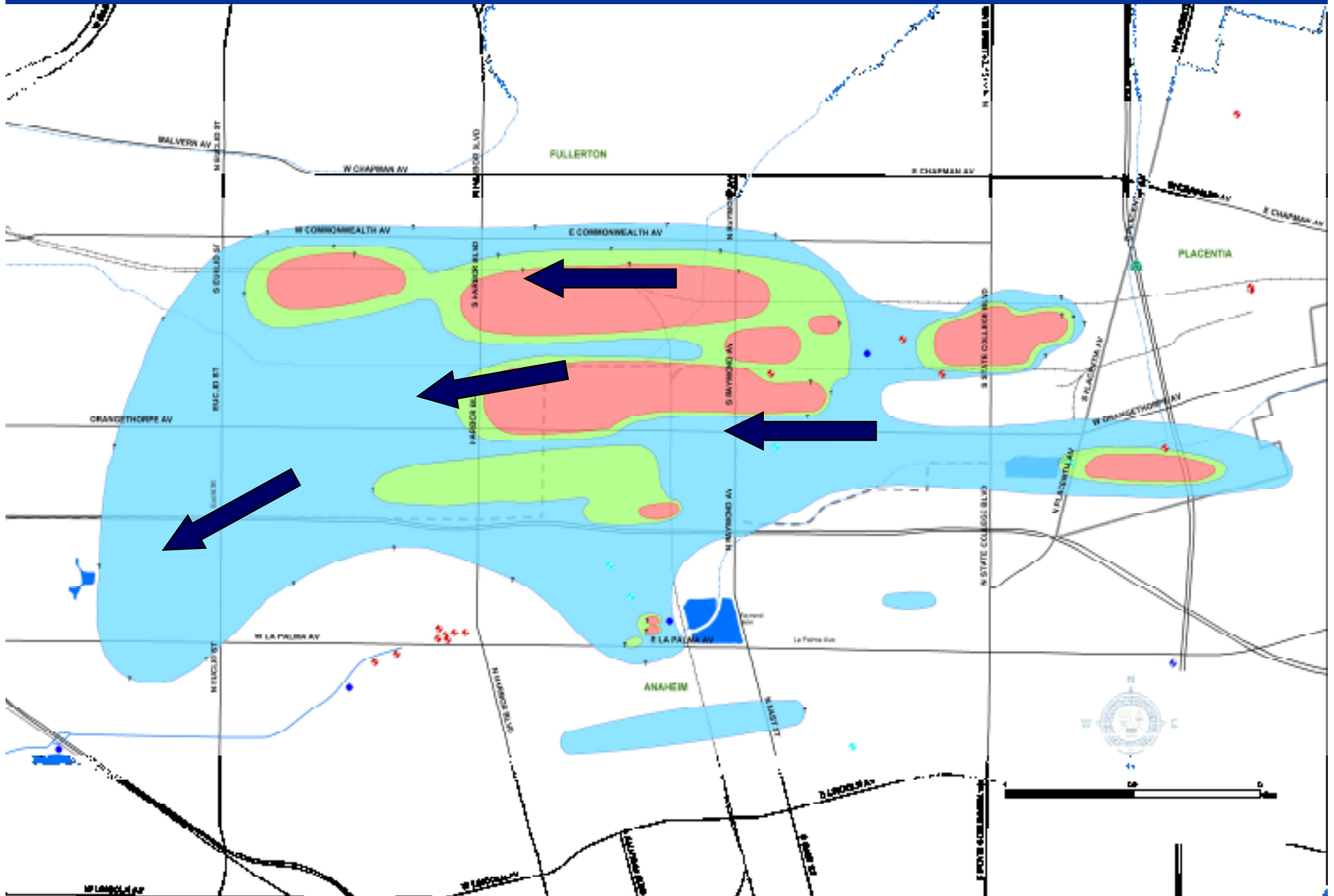
The Orange County groundwater basin supplies 70% of the water demand of 2.3 million people.



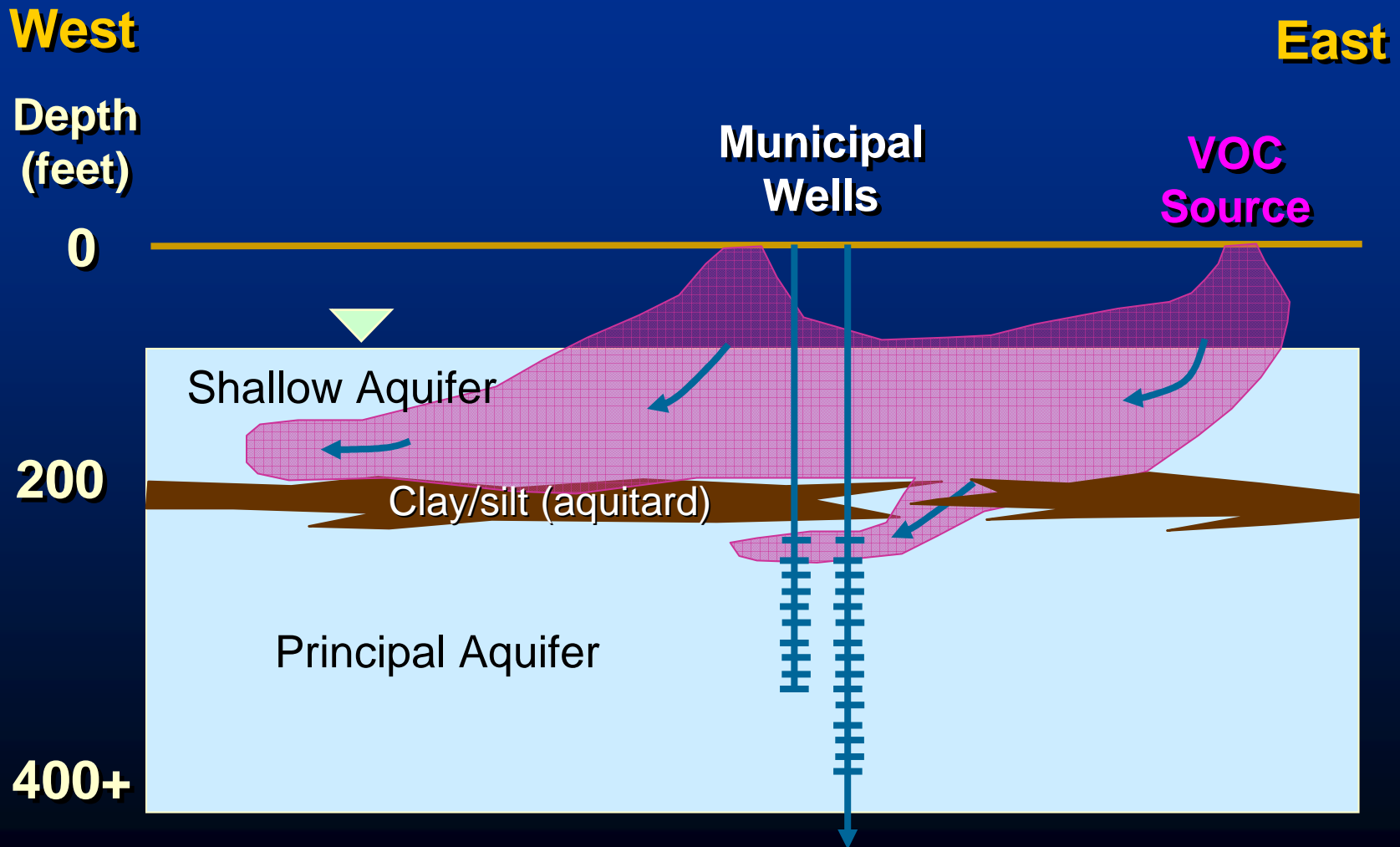
The project is in the basin's Forebay area.



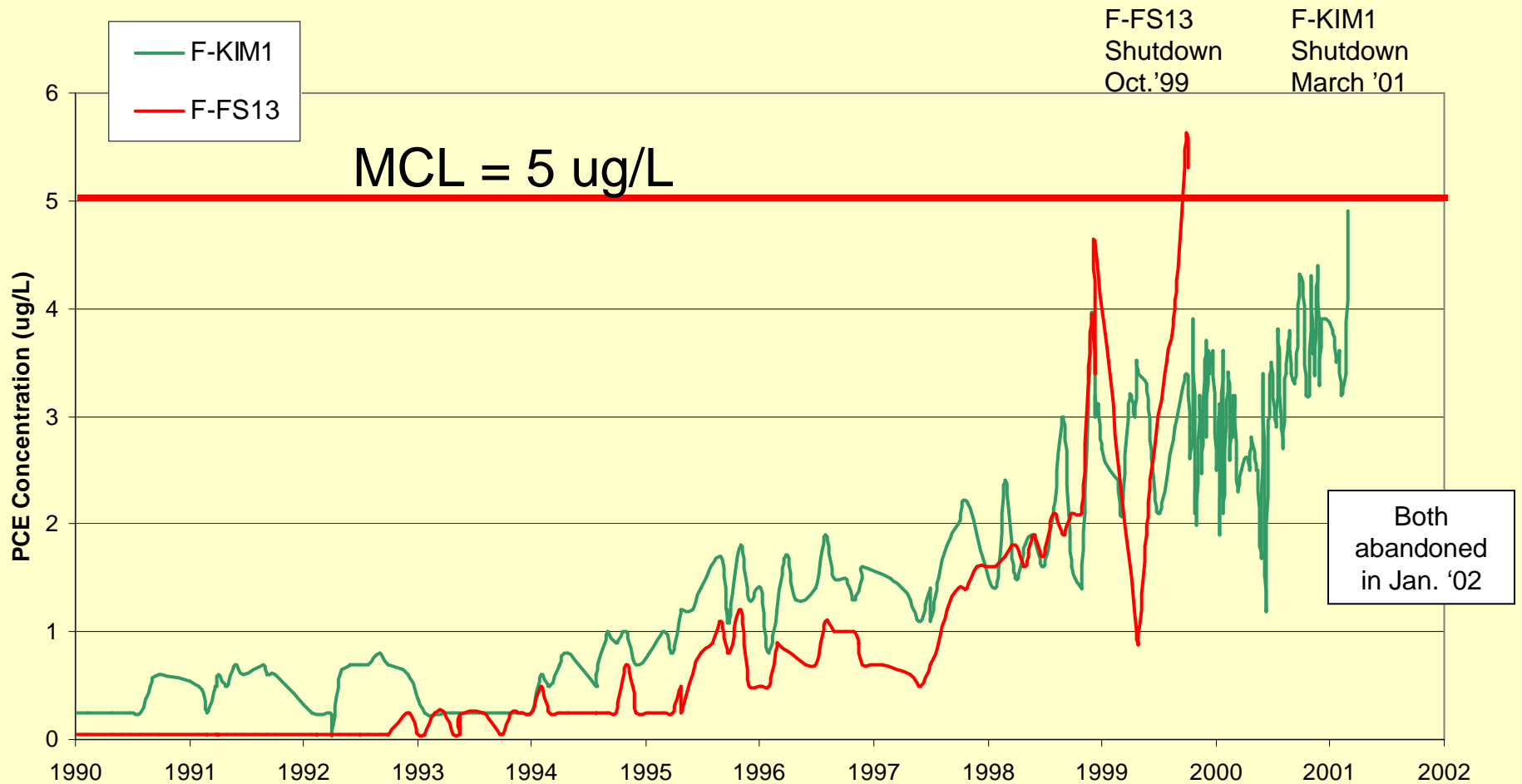
Groundwater flow is generally to the west.



VOCs flow laterally and vertically under a downward gradient.



Two Fullerton wells were shut down due to PCE concentrations.

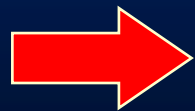


Conditions warranted remedial action by OCWD.

- **Plumes from numerous industrial sites**
- **Individual plumes not delineated**
- **Most sites closed or inactive**
- **One site performing pump and treat**

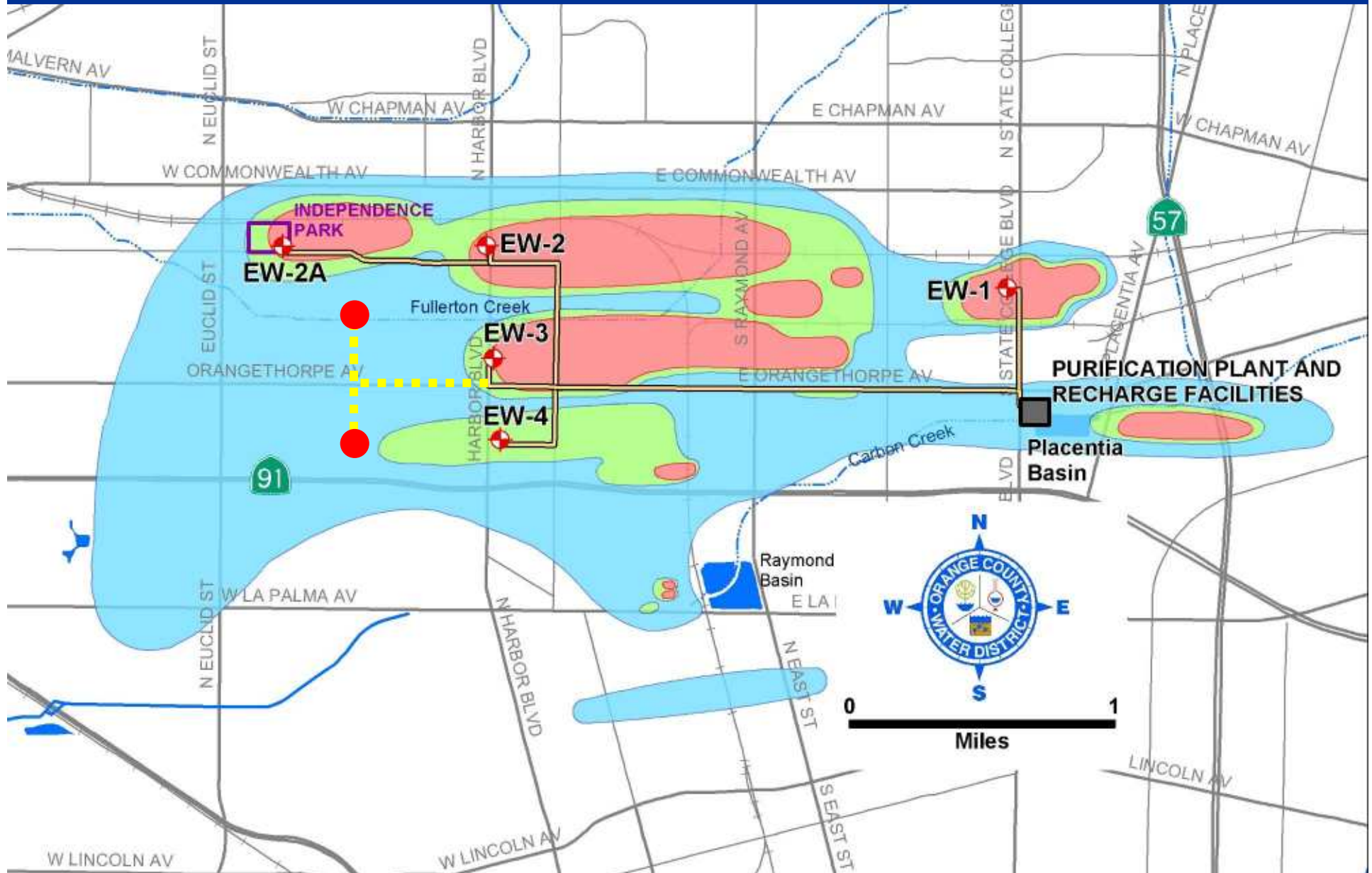
Project Remedial Objectives

- **Prevent public exposure to contaminants above MCLs**
- **Inhibit contaminant migration**
- **Remove contaminant mass**



Work with regulators to expedite mass removal at VOC source areas

Hydraulic containment via extraction wells was selected due to the depth and extent of VOCs.



Project Components

- **5-7 extraction wells (up to 700 gpm ea.)**
- **5 miles of pipeline**
- **Advanced oxidation/GAC treatment**
- **Ion exchange if necessary**
- **Injection wells**

Estimated Project Costs

(2005 unadjusted)

- **\$20 million capital**
- **\$1.9 million/year O&M**
- **\$50 million net present value (30 years)**

Why should OCWD perform cleanup?

- **Consistent with our mission to protect and enhance groundwater quality**
- **Within statutory authority**
- **Cost recovery through civil action reduces burden on water users**

End of Presentation
