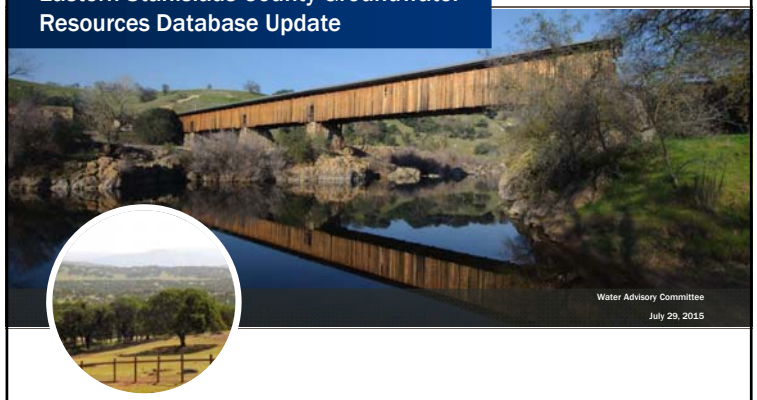
Eastern Stanislaus County Groundwater Resources Database Update



Water Advisory Committee

July 29, 2015

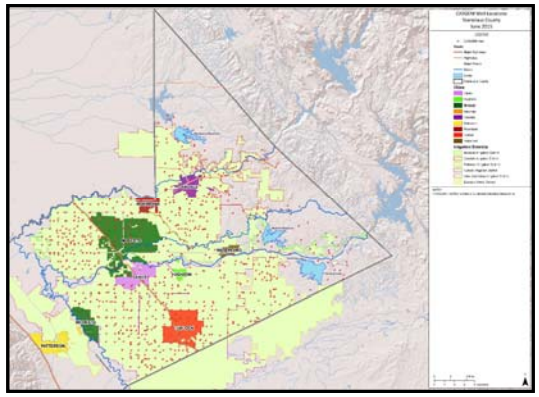
Outline

- Create Groundwater Resources Database
  - Focus on Eastern Stanislaus County
  - Capture existing CASGEM data
  - Include
    - Well construction/location data
    - Water level data
  - Create ability to also store
    - Pumping data
    - Geology
    - Water quality data
- Review/Compile CA Department of Water Resources Well Completion Form Data
- Community Outreach to Collect Water Level Seasonal Data in Eastern Stanislaus County

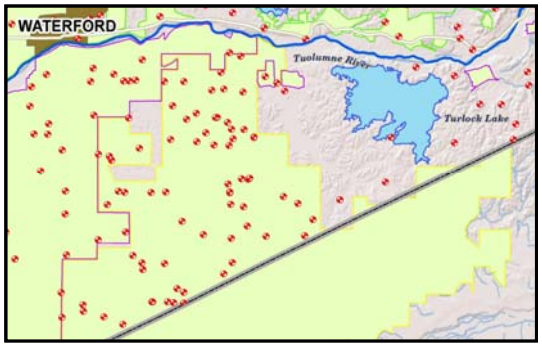
Created County Groundwater Resources Database

- MS Access Personal Geodatabase
  - Relational database
  - Compatible with County ArcGIS
  - Flexible – Compatible with other database platforms
- CA Statewide Groundwater Monitoring (CASGEM) as Template
  - CA Bulletin 118 Sub-basins
    - Eastern San Joaquin (5-22.01)
    - Modesto (5-22.02)
    - Turlock (5-22.03)
- Imported CASGEM well data and 2014 water level data
- Database Storage Capabilities
  - Well Location/Well Construction
  - Water Level Data
  - Pumping Data
  - Geology
  - Water Quality

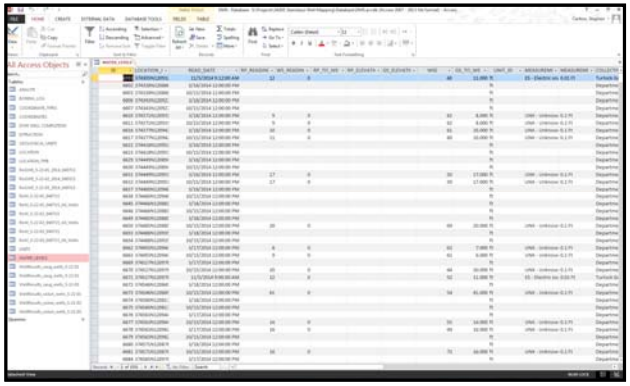
Imported CASGEM Well Locations



CASGEM Wells Detail



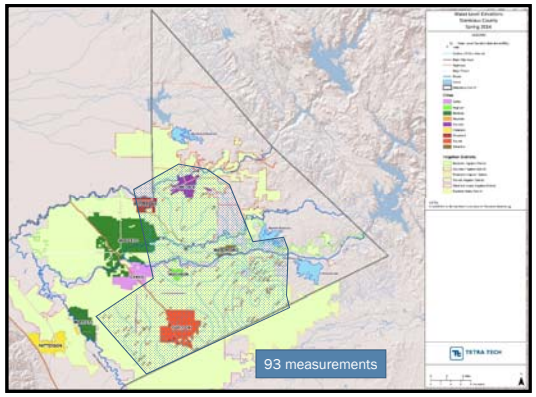
Database Example – Water Level



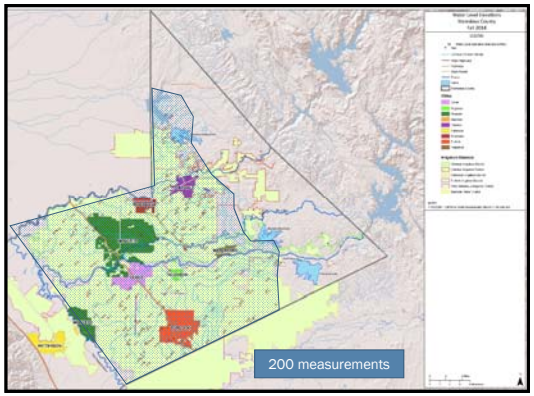
Database Statistics

- Wells
  - 1516 CASGEM Well Locations Included
    - 750 "CASGEM wells" (all well construction data included)
    - 766 "Voluntary wells" (some or all well construction data included)
- Water Level Data 2014
  - 1051 Measurements Entire Calendar Year
    - 93 Spring (March 1 to April 15)
    - 200 Fall (September 15 to October 31)

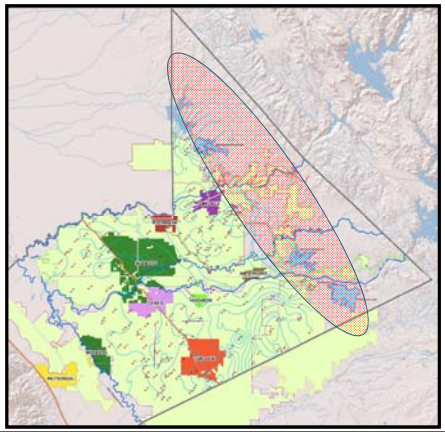
Spring 2014



Fall 2014



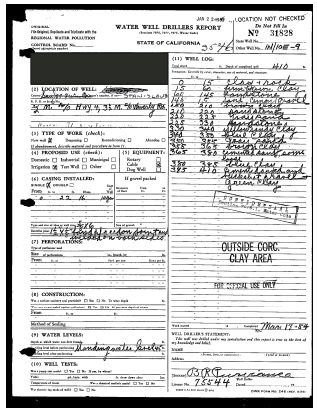
Fall 2014 - Data Gaps



CA DWR Well Completion Forms (WCFs)

- WCFs cover 52 Township/Range Area (entire Stanislaus County)
- DWR well information provided for years 1944 through 2009
- Focus on Eastern County
- Reviewed 16 Eastern County Township/Range Area
  - 576 Square Miles
  - 2,578 Well Records
- Identify Industrial/Irrigation Wells
  - Criteria
    - Labeled "irrigation, stock, industrial" well
    - Diameter greater than 6 inches
    - Production greater than 100 gpm (if reported)
- CA Senate Bill 83 Update – Well Completion Forms no longer Confidential (as of late June 2015)

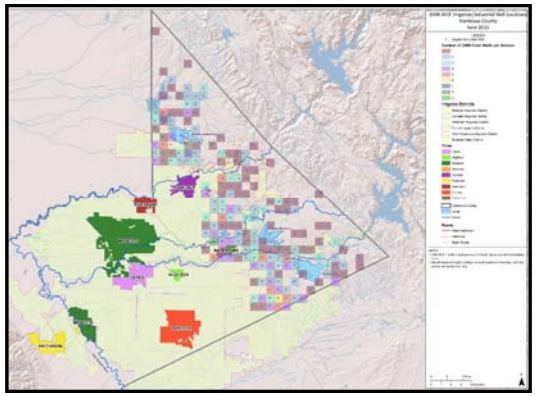
Typical DWR Well Completion Report



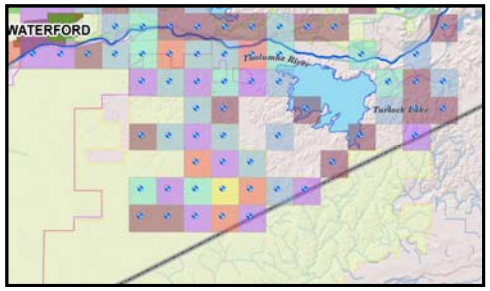
DWR WCF Screening Results

- 416 Irrigation/Industrial Wells identified in Eastern Stanislaus County
- Covers years from 1944 to 2009
- Well depths range from 65 feet to 820 feet
- Well diameters range from 6 inches to 20 inches

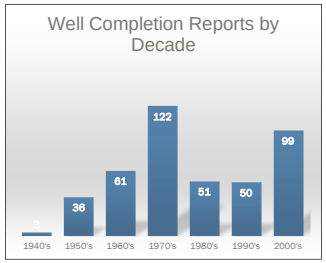
DWR WCF Wells Cover Some of Data Gap

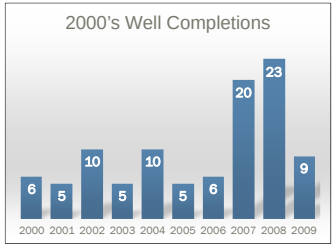


DWR WCF Well Locations – Detail

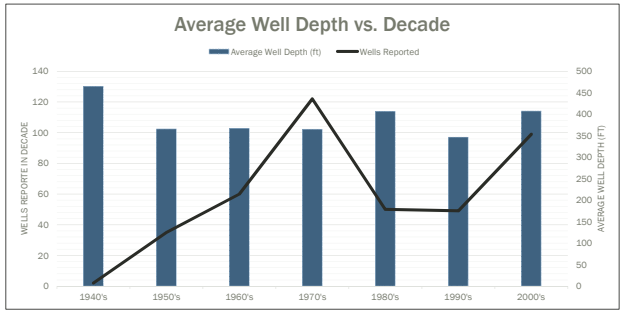


WCF Well Statistics



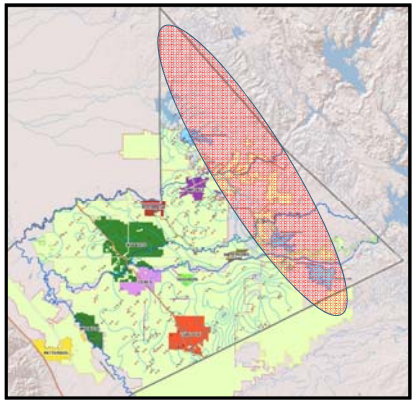


Details Continued



Well Capacity noted in 146 of 416 wells (35 percent of total)
Average well capacity 1,695 gallons per minute

Outreach – Areas of Limited Data



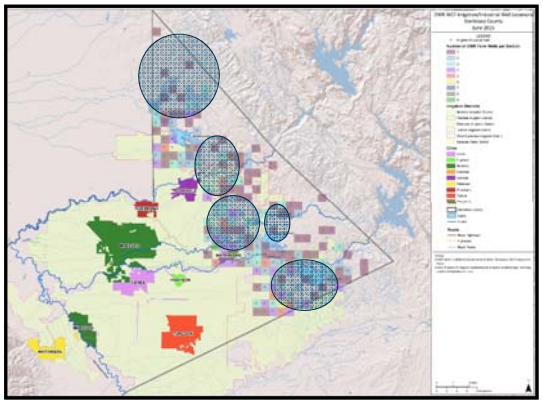
Outreach

- WAC Private Land Owners Adopted Groundwater Monitoring Network Program July 25, 2014
- Focused on Areas of Limited Data
- Data Requested:
  - Type of well (Domestic, Agriculture, Industrial, and Municipal)
  - Use of the well (seasonal or continuous)
  - Well construction information
  - Total well depth
  - Depth to top of first screened section
  - Well casing diameter
  - Well casing material
  - Measuring Point elevation (vertical datum conformable with CASGEM)
  - Year well was constructed
  - Location of well (DWR Hydrographic Sub-Area)
  - GPS location (latitude/longitude)

Outreach

- Contacted companies, organizations, and individuals within the Areas of Limited Data requesting private party participation in data collection program.
- None have said No.
- Some have said Yes.
- Some are working within organizations to get organizational buy in.
- Negotiations are on going with a few.

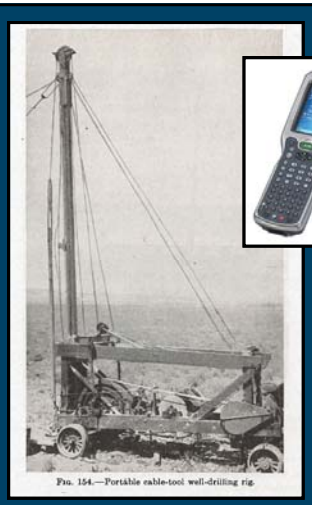
Outreach – potential private party wells



Summary – Groundwater Resources Data Collection and Storage

- Who
  - Stanislaus County developed database framework
  - Private party participants to provide on-going data collection [consistent with County Groundwater Ordinance 9.37.065 parts (a) and (b)]
- What
  - MS Access Database
    - Well Location, Well Construction, Water Level, Well Capacity included
    - Created to include Extraction, Geology, and Water Quality
    - 1516 Wells captured from DWR CASGEM data covering the three eastern sub-basins
    - 1051 Water Level Measurements for 2014 included
    - 416 Wells identified through DWR Well Completion Forms

Summary - Water Resources Data Collection and Storage (continued)

- When
  - Database framework is completed
  - Data collection outreach program initiated
  - Water level data and pumping data to be collected annually during spring and fall
- Where
  - County wide with focus on Eastern Stanislaus County
- Why
  - Long-term water planning
  - Compliance with Sustainable Groundwater Management Act

Questions and Discussion