



Lower Tuscan Aquifer  
*Monitoring, Recharge & Data Management Project*

Butte County Water Commission  
May 5, 2010



## Presentation Overview

- Introductions
- Project Purpose
- Project Overview
- Outreach
- Next Steps



## Project Overview

- CEQA Initial Study
- Develop Geodatabase
- Aquifer Recharge Assessment
- Installation of Groundwater Monitoring Wells
- Aquifer Performance Testing



## Project Purpose

- Field Investigation that seeks to improve the scientific understanding of the properties of the Lower Tuscan Aquifer system (LTA).
  - Physical parameters affecting percolation of surface water to the LTA
  - Interaction between surface water and groundwater
  - Recharge contribution from other aquifers to the LTA
  - Measure standard aquifer properties and their variability
  - Identify natural recharge areas under current hydrologic conditions
  - Identify recharge areas under increase utilization
  - How additional pumping may impact the aquifer and surface water



## Project Purpose

- Things this study will do:
  - Improve understanding of infiltration in regions near foothill streams
  - Evaluate surface water and groundwater interaction
  - Improve understanding of groundwater recharge to the LTA from streams, foothill areas, and other aquifers
  - Increase knowledge of hydrogeologic characteristics of the LTA
  - Enhance groundwater monitoring well network
- Develops a sound scientific foundation for understanding of the hydrology of the LTA

## Project Purpose

- Things this study will not do:
  - Determine the safe yield of the LTA, locally or regionally
  - Determine the storage capacity of the N. Sacramento Valley
  - Study recharge from the Sacramento and Feather Rivers
  - Update the Butte Basin IWFM model
  - Identify the subsurface extent of the Tuscan Formation
- New production wells will NOT be installed
- Project is not connected to any water transfer programs



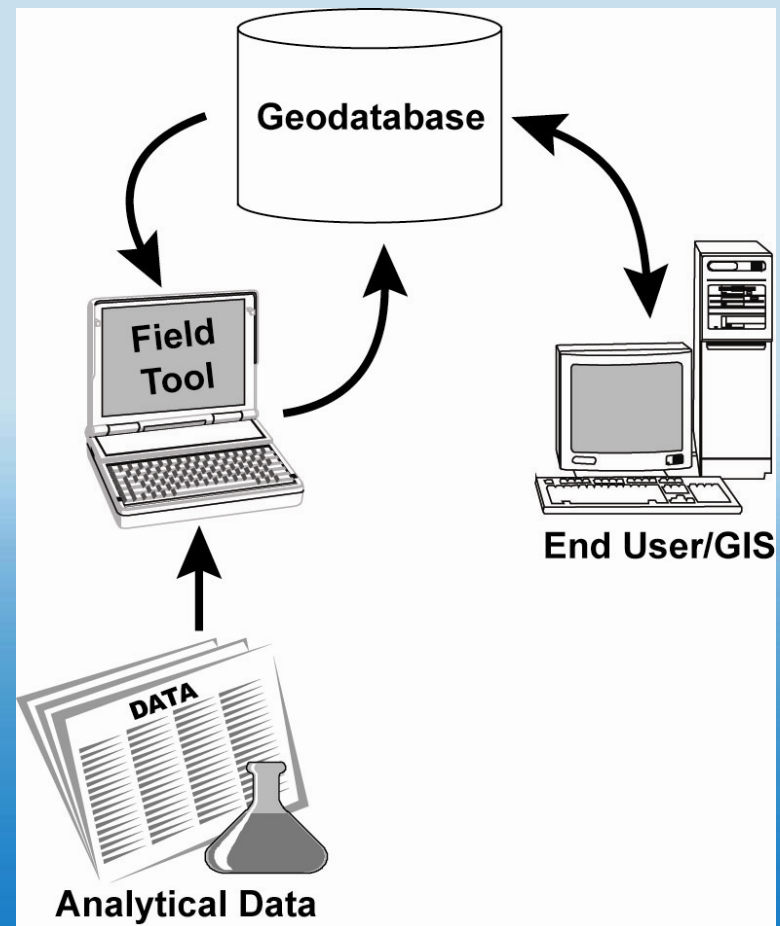
## Project Overview - CEQA Initial Study

- Initial Study / Environmental Checklist
  - Describes Environmental Setting
  - Evaluates project activities compared to setting
  - Determines potential for environmental impacts
  - Identifies mitigation or avoidance measures
  
- Mitigated Negative Declaration
  - Public review to start May 10, 2010
  - Available on Website



# Geodatabase Overview

- Purpose and Benefits
  - GIS compatible
  - Improves data quality
  - Enhances data transfer and use
- Geodatabase Implementation
  - Project database
  - GIS integration
  - Field tool





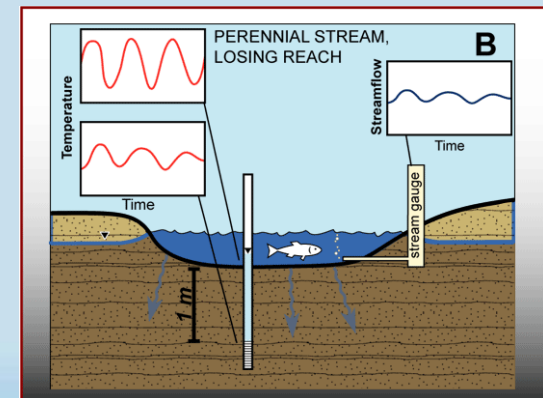
# Project Overview - Aquifer Recharge Assessment

- Soil Infiltration Testing
  - Double-ring infiltrometer
  - Soil profile and log
  - Grain size distribution
  
- Stream Gauging
  - Six Creeks, two gauges per creek, one at each end of Lower Tuscan outcrops
  - Cross-sectional stream survey
  - Stream level, flow, and temperature measurements



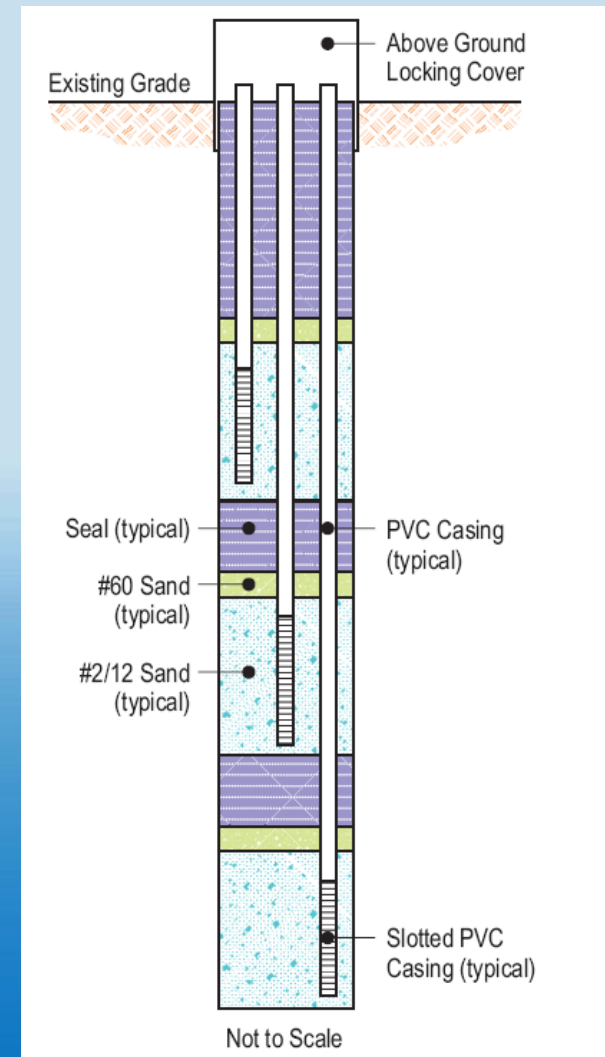
# Project Overview - Aquifer Recharge Assessment

- Stream-Aquifer Interaction
  - Stream temperature profiles
  - Assess flux rates of stream loss into groundwater
    - Streambed permeability
    - Shallow slug tests



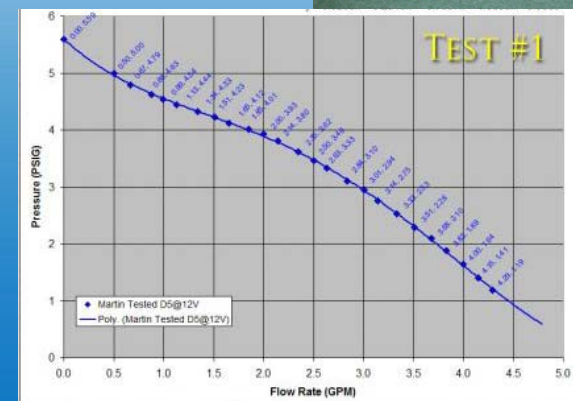
# Project Overview – Installation of Groundwater Monitoring Wells

- Multiple completion wells are used to assess interaction between distinct zones of Lower Tuscan
- Additional refinement of understanding of subsurface hydrogeology
- Data collected:
  - Lithology
  - Well construction
  - Water levels



# Project Overview – Aquifer Performance Testing

- Review of existing aquifer tests
- Use existing wells under normal operating conditions (no new production wells)
- Measure groundwater level data with pressure transducers
- Measure groundwater quality parameters
- Calculate Tuscan aquifer parameters
- Tests to occur in winter of 2011



# Outreach

- Public Meetings
- Butte, Tehama, and Glenn County advisory committee meetings
- Website and newsletter
- Outreach message – Field investigation works to increase understanding of the aquifer.

**Tuscan Aquifer INVESTIGATION**  
 2010 3<sup>RD</sup> QUARTER NEWSLETTER  
 OCTOBER 1, 2010

**INSIDE THIS ISSUE**

- 1 Stream Gauge Monitoring
- 1 Monitoring Wells
- 1 4 County Meetings Held
- 2 Slug Testing
- 2 Probe Installation
- 2 Infiltration Testing
- 2 Quarterly Report

**Groundwater Monitoring Wells**

Two groundwater monitoring wells were installed this quarter as part of the Tuscan Aquifer Investigation.

The five wells were drilled at sites selected to create a high quality monitoring grid for upcoming aquifer testing. Monitoring well sites were previously cleared following California Environmental Quality Act (CEQA) requirements and well sites have not adversely affected the environment near them.

The five monitoring wells include:

- 3D03 near Big Chico Creek
- 15N02 in Cherokee

Existing Grade, Above Ground Locking Cover, Seal (typical), #60 Sand (typical), #2/12 Sand (typical), PVC Casing (typical), Slotted PVC Casing (typical), Not to Scale

**FROM THE LAST ISSUE | Reaching Out**



## Summer Schedule

- Establish stream gauges
- Perform infiltration testing
- Install monitoring wells
- Public workshop

## Closing Message

- Project Purpose is to increase understanding of the Lower Tuscan Aquifer as a *system*.
- Project tasks work together to acquire, compile, and share collected data

