

SACRAMENTO
VALLEY
GROUNDWATER
CONDITIONS
SUMMER 2014



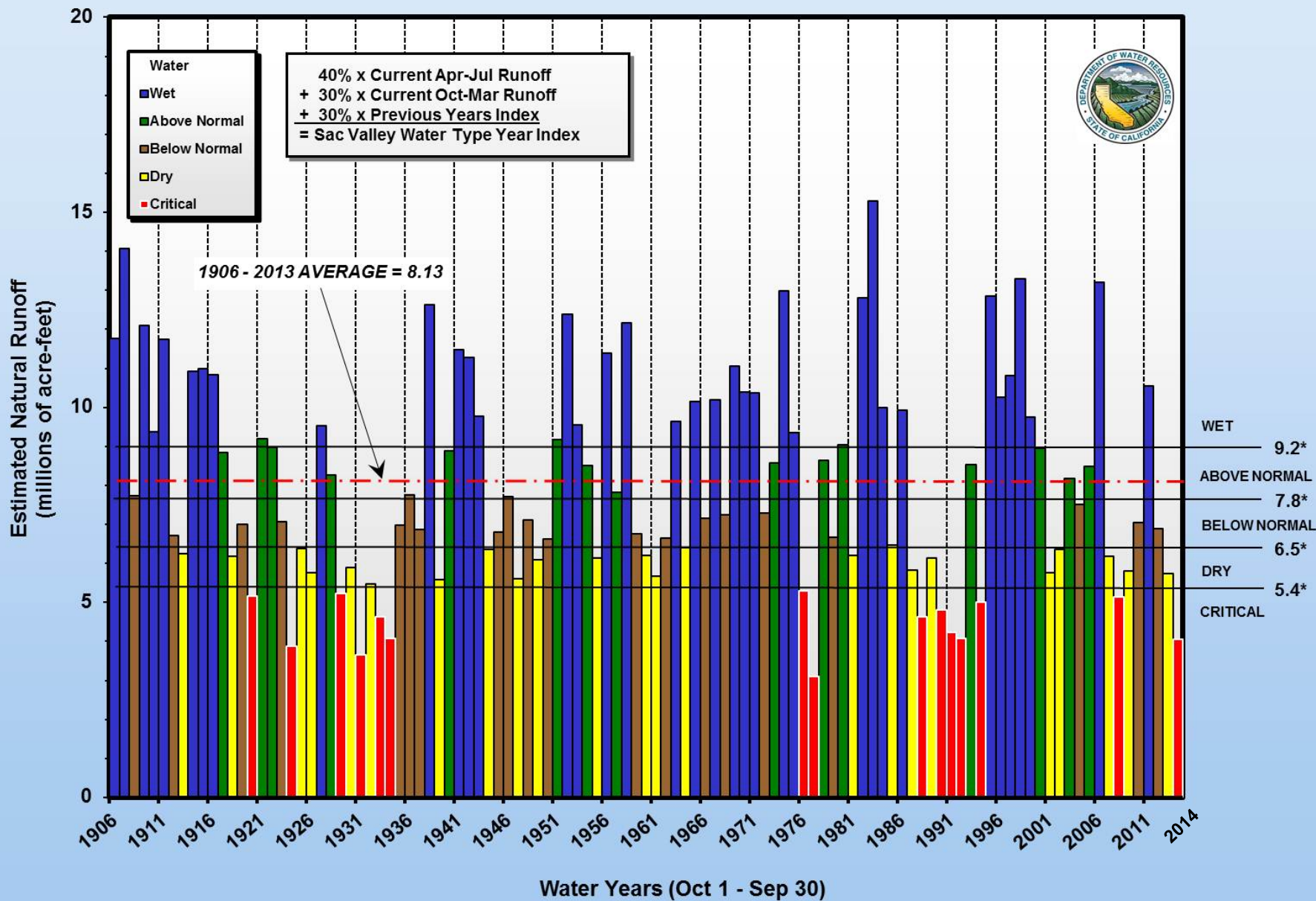
Michelle Dooley, Engineering Geologist
Groundwater and Geologic Investigations Section
CA Department of Water Resources
Northern Region – Red Bluff
October 23, 2014

- ◎ Introduction
- ◎ Water Year Index/Drought
- ◎ Summer Measurement Change

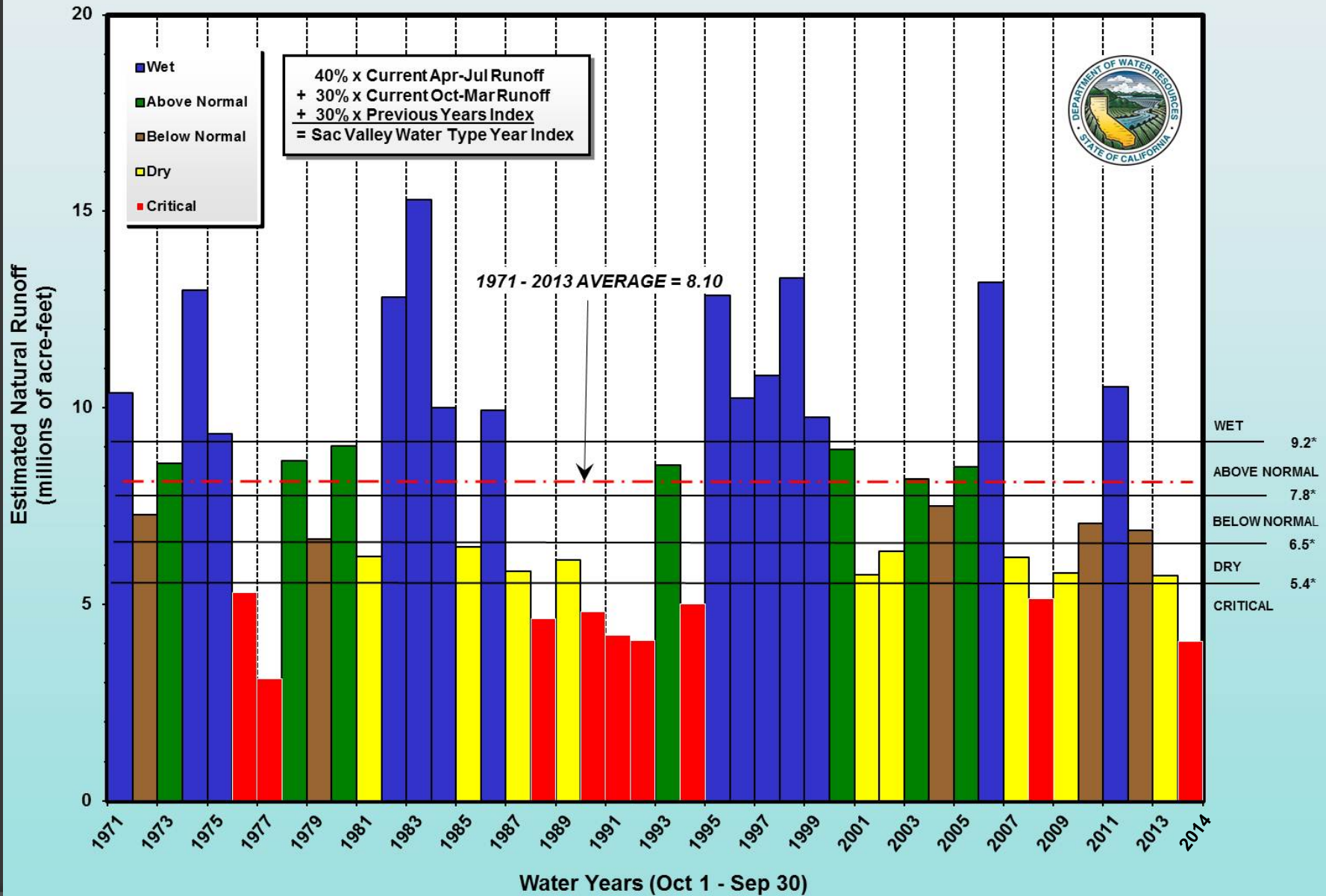
Maps

- with Select Hydrographs
- ◎ GW Information Center Website

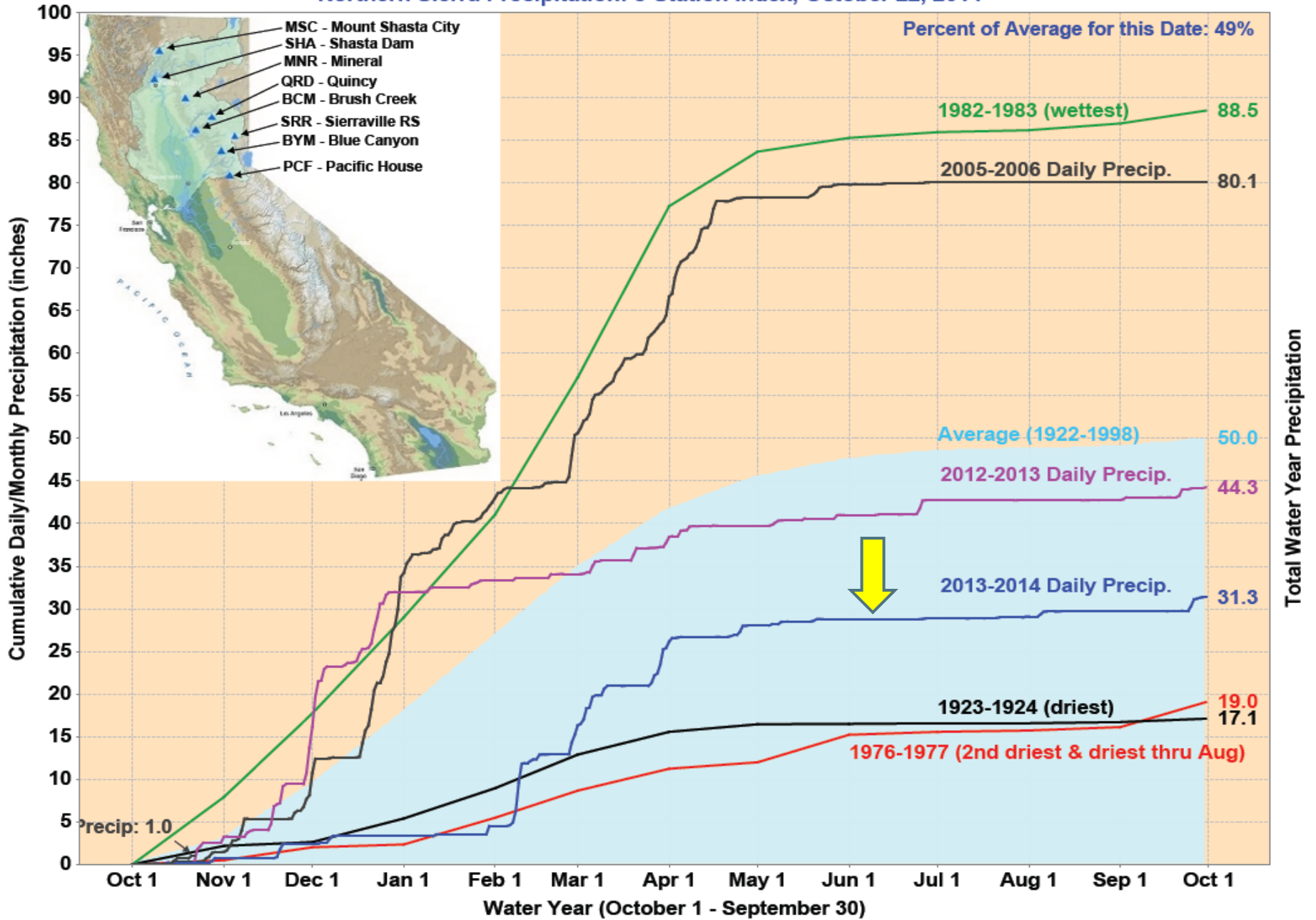
SACRAMENTO VALLEY WATER YEAR TYPE INDEX 1906 - 2014

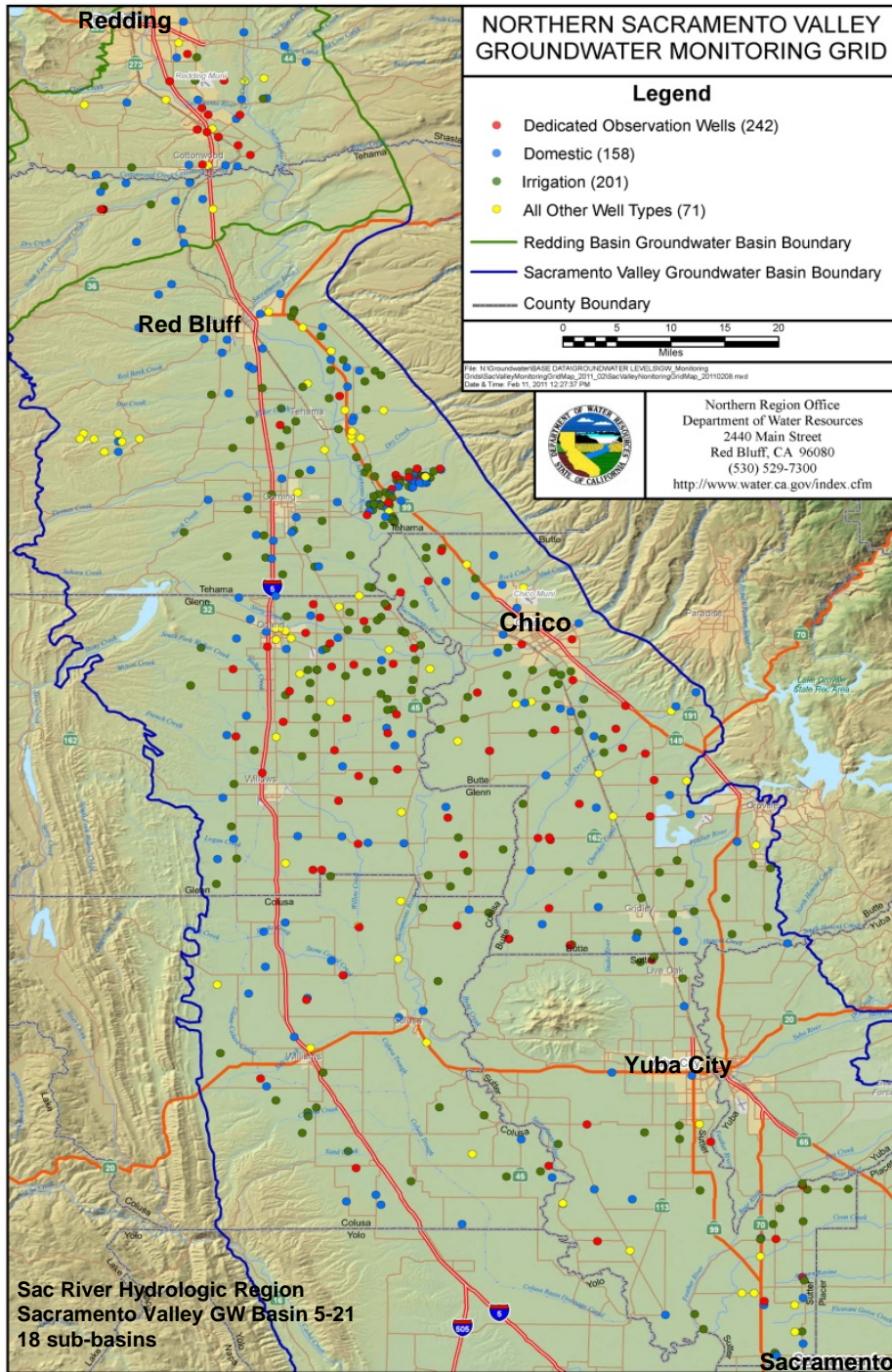


SACRAMENTO VALLEY WATER YEAR TYPE INDEX 1971-2014



Northern Sierra Precipitation: 8-Station Index, October 22, 2014





Northern Region Office

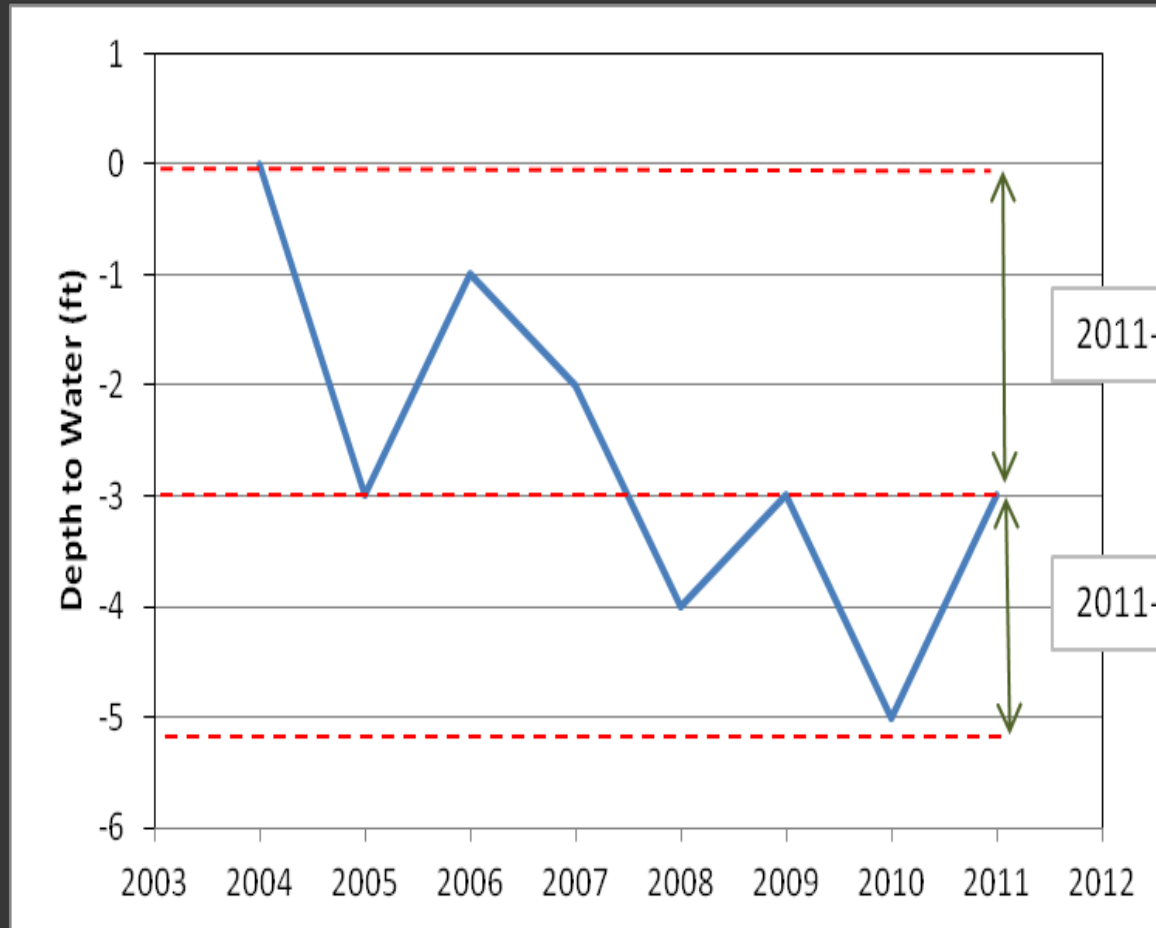
Groundwater Monitoring Grids, Frequency, and Analysis

- Sacramento Valley ~700 wells measured Spring, Summer, and Fall
- Wells at different depths are grouped for analysis:
 - 100-450 ft deep
 - Shallow, Intermediate, Deep
- Prepare groundwater **change maps** to compare to previous year and to 2004 (normal year)
- Prepare **hydrographs** for individual wells to see change in groundwater levels over time

Understanding Groundwater Level Changes

2014 vs.
2013 -
Annual

2014 vs.
2004 -
Long term
(10 yrs.)



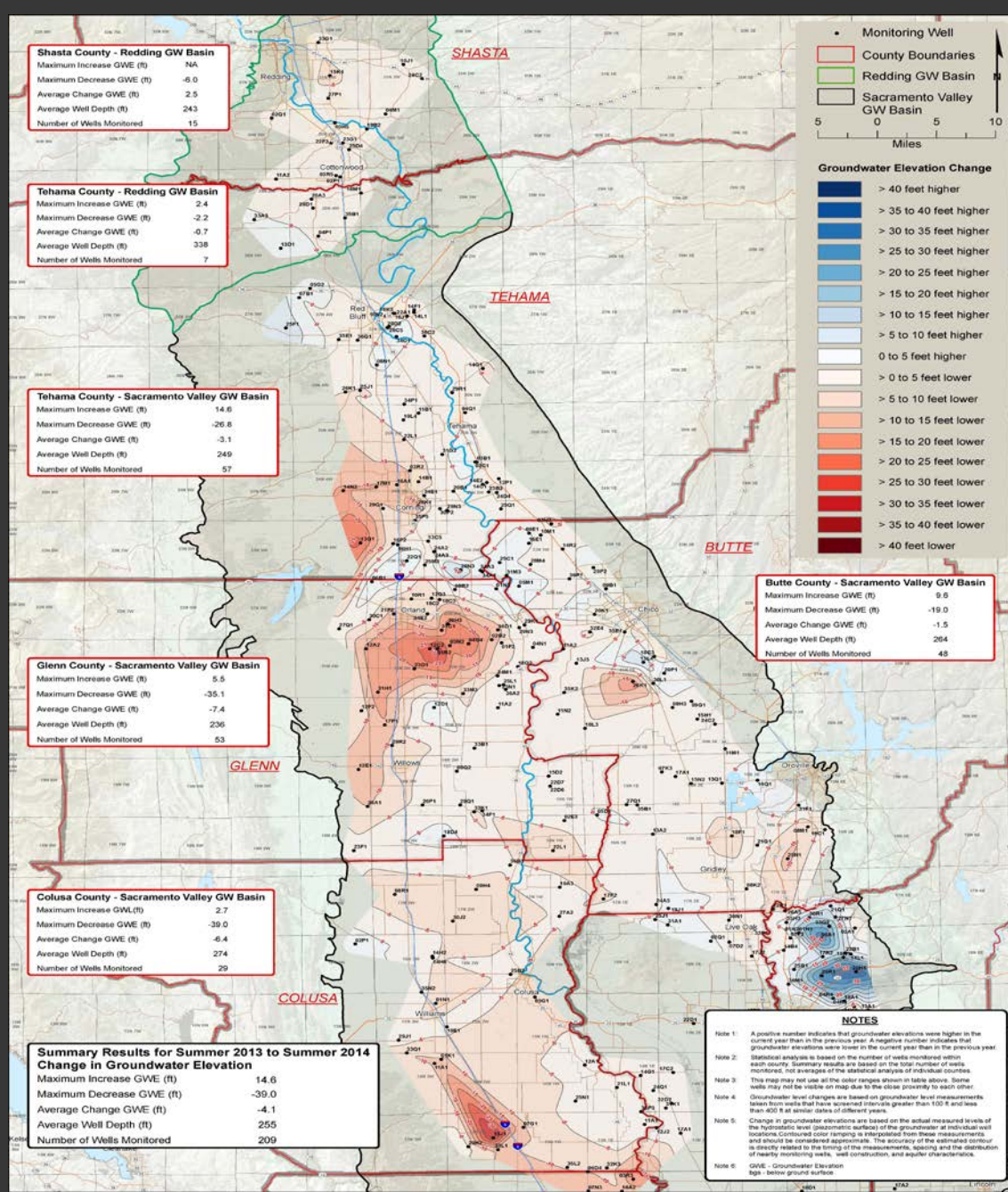
2011-2004 = change of -3.0 ft.

2011-2010 = change of +2.0 ft.

Annual Change

2013
vs.
2014

Summer
100 ft
↓
450 ft



Long Term Change

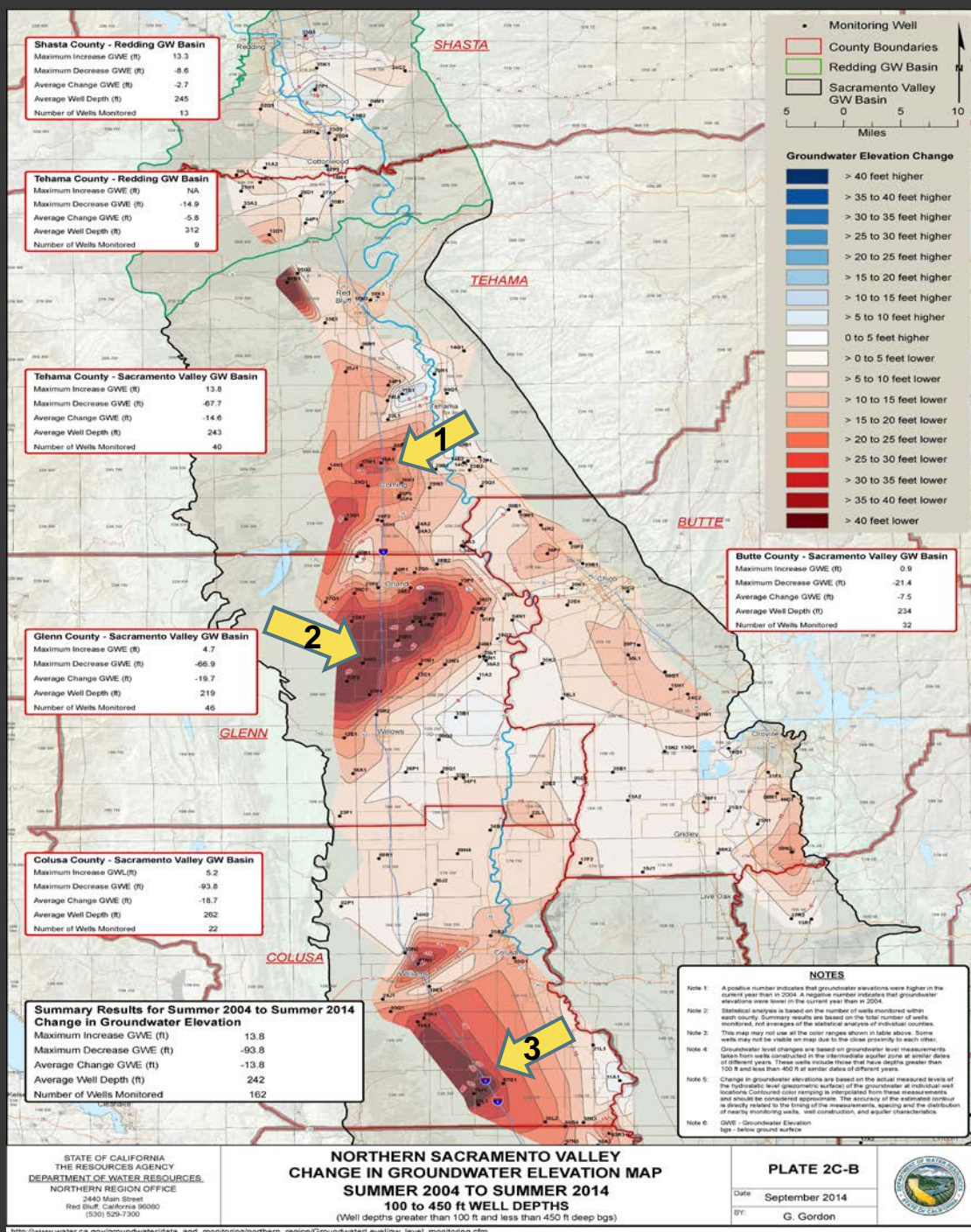
2004 to 2014

Spring

100 ft



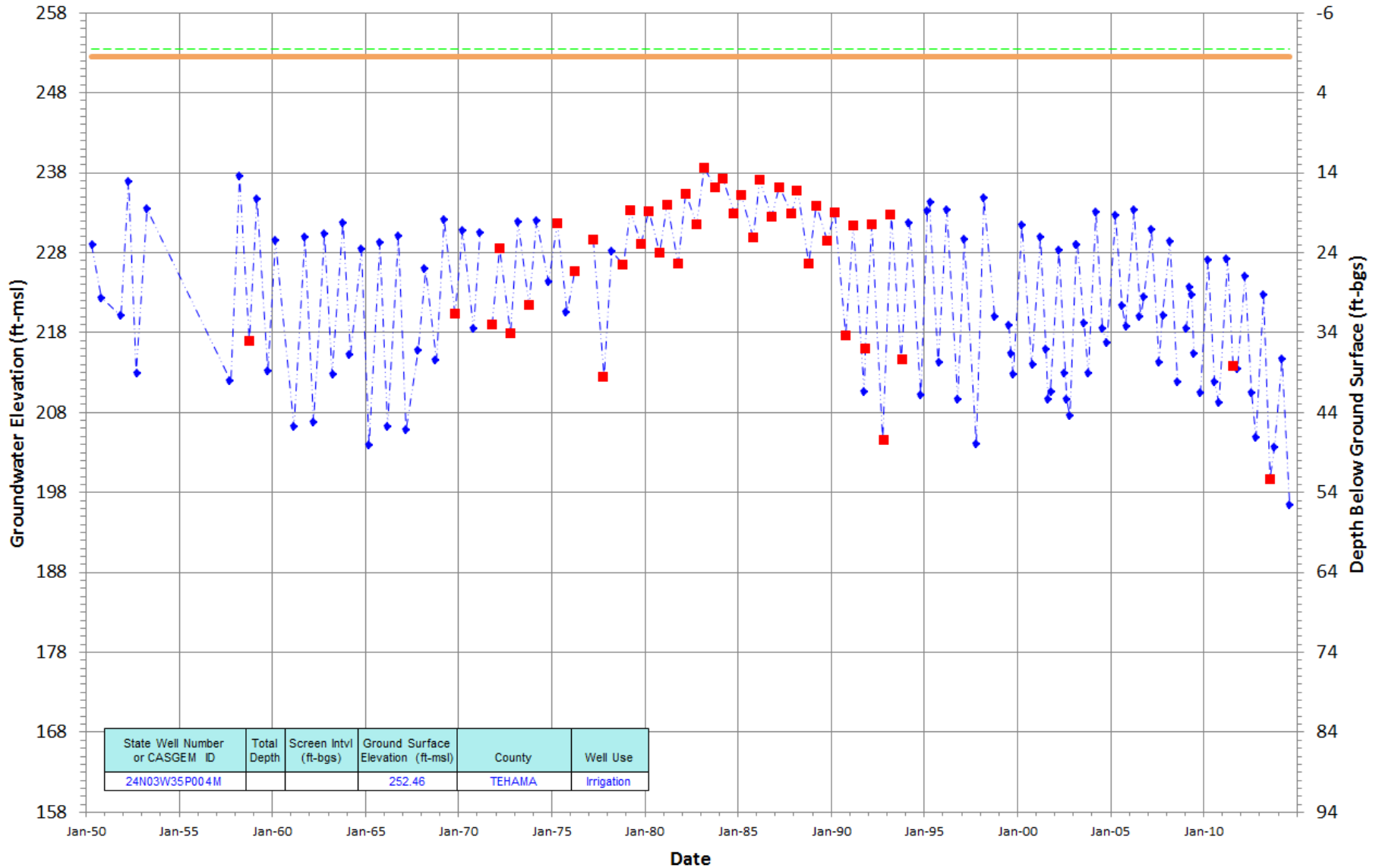
450 ft



24N03W35P004M

Period Of Record: 04/23/1950 to 08/07/2014

Hydrograph Criteria
State Well Number contains '24n03w35p004'

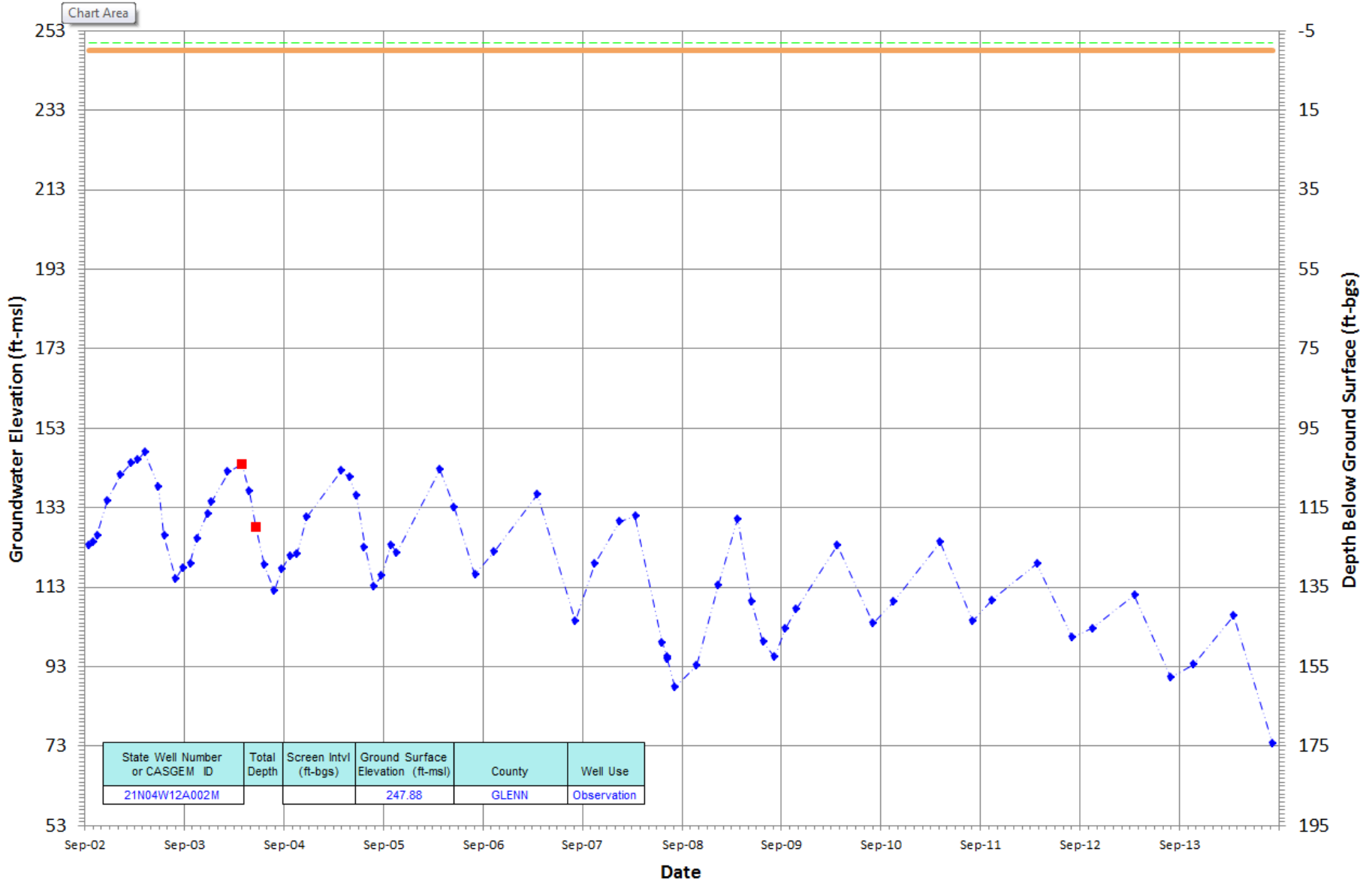


— Ground Surface Elev
 - - - RP Elev
 - - - ◆ - - - Periodic Measurements
 ■ Questionable Measurements

21N04W12A002M

Period Of Record: 09/17/2002 to 08/06/2014

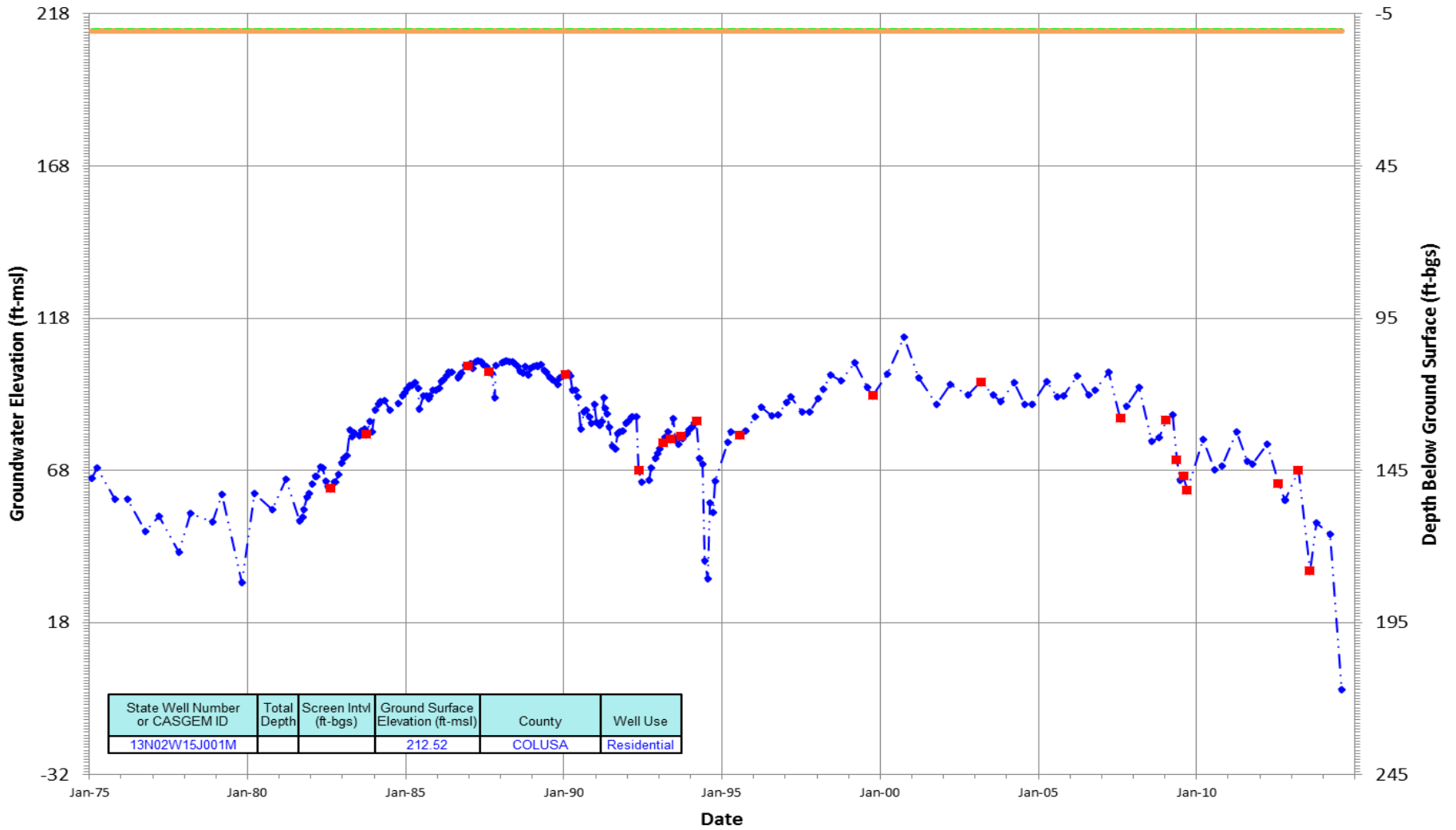
Hydrograph Criteria
State Well Number contains '21n04w12a002'



— Ground Surface Elev
 - - - RP Elev
 - - - ◆ - - - Periodic Measurements
 ■ Questionable Measurements

13N02W15J001M
 Period Of Record: 01/28/1975 to 08/05/2014

Hydrograph Criteria



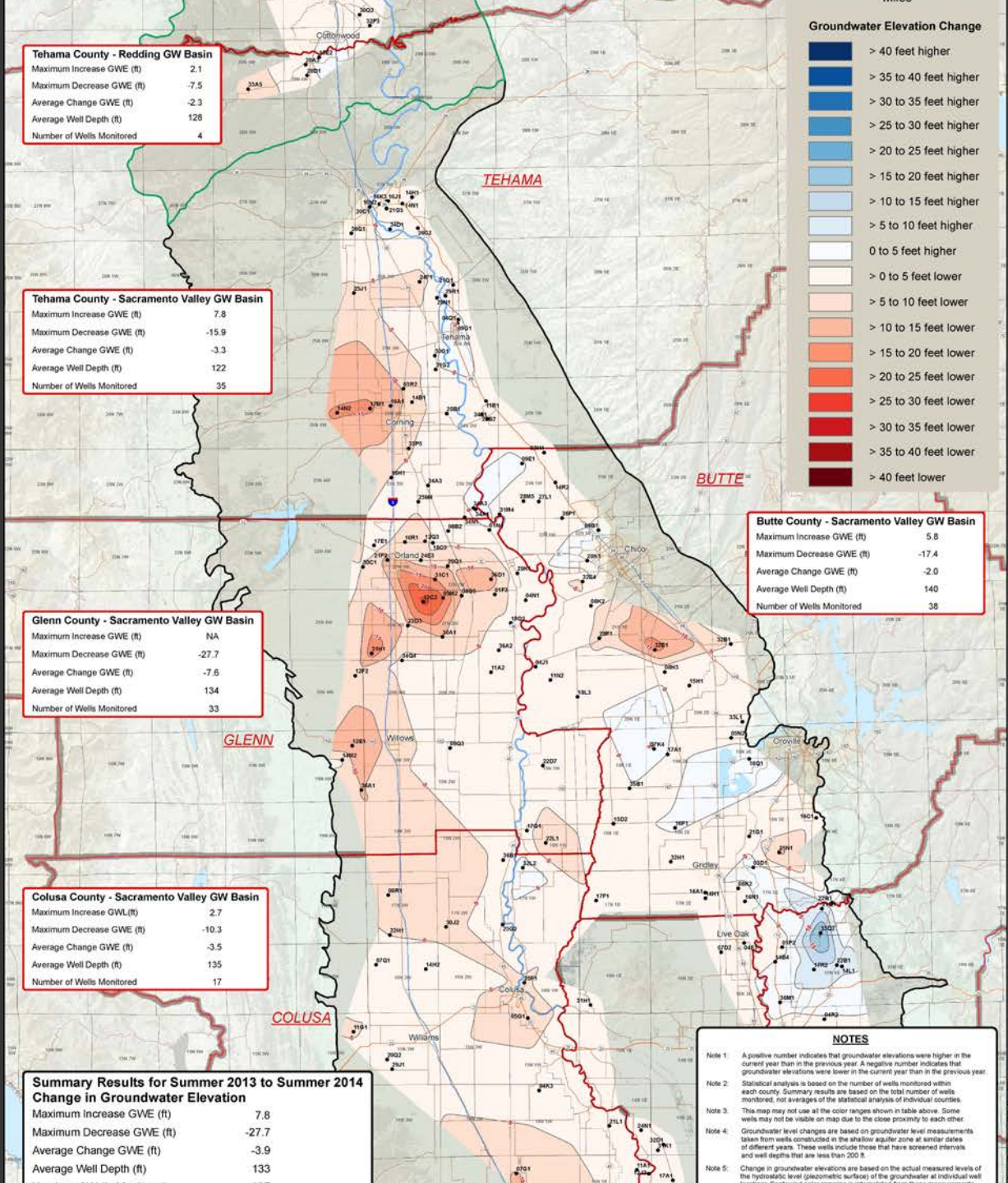
— Ground Surface Elev
 - - - RP Elev
 —◆— Periodic Measurements
 ■ Questionable Measurements

Annual Change

2013-2014
Summer

Shallow

< than 200 ft



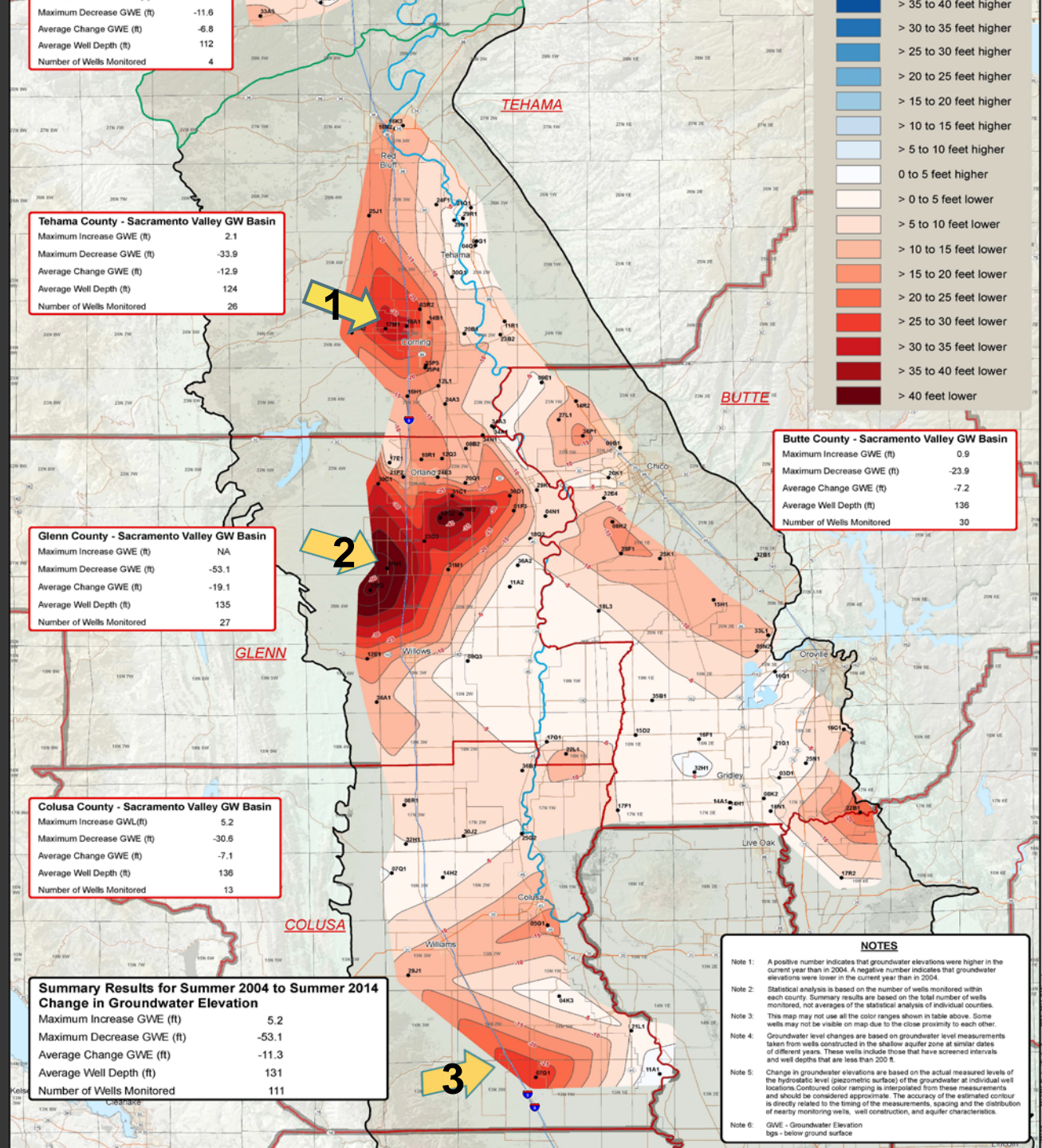
Long Term Change

2004-2014

Summer

Shallow

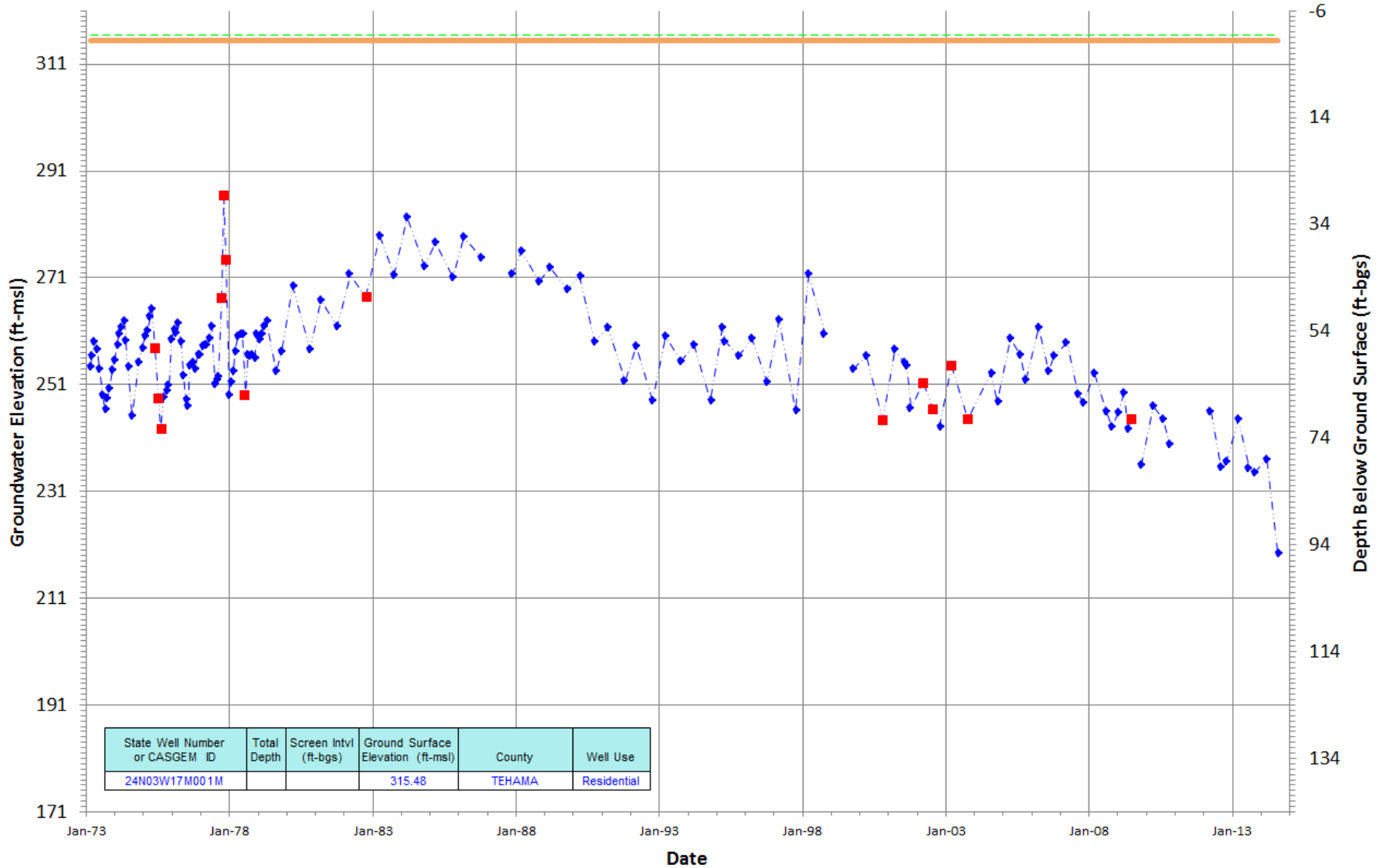
< than 200 ft



24N03W17M001M
 Period Of Record: 02/20/1973 to 08/07/2014

Hydrograph Criteria
 State Well Number contains '24n03w17m001'

TextBox14

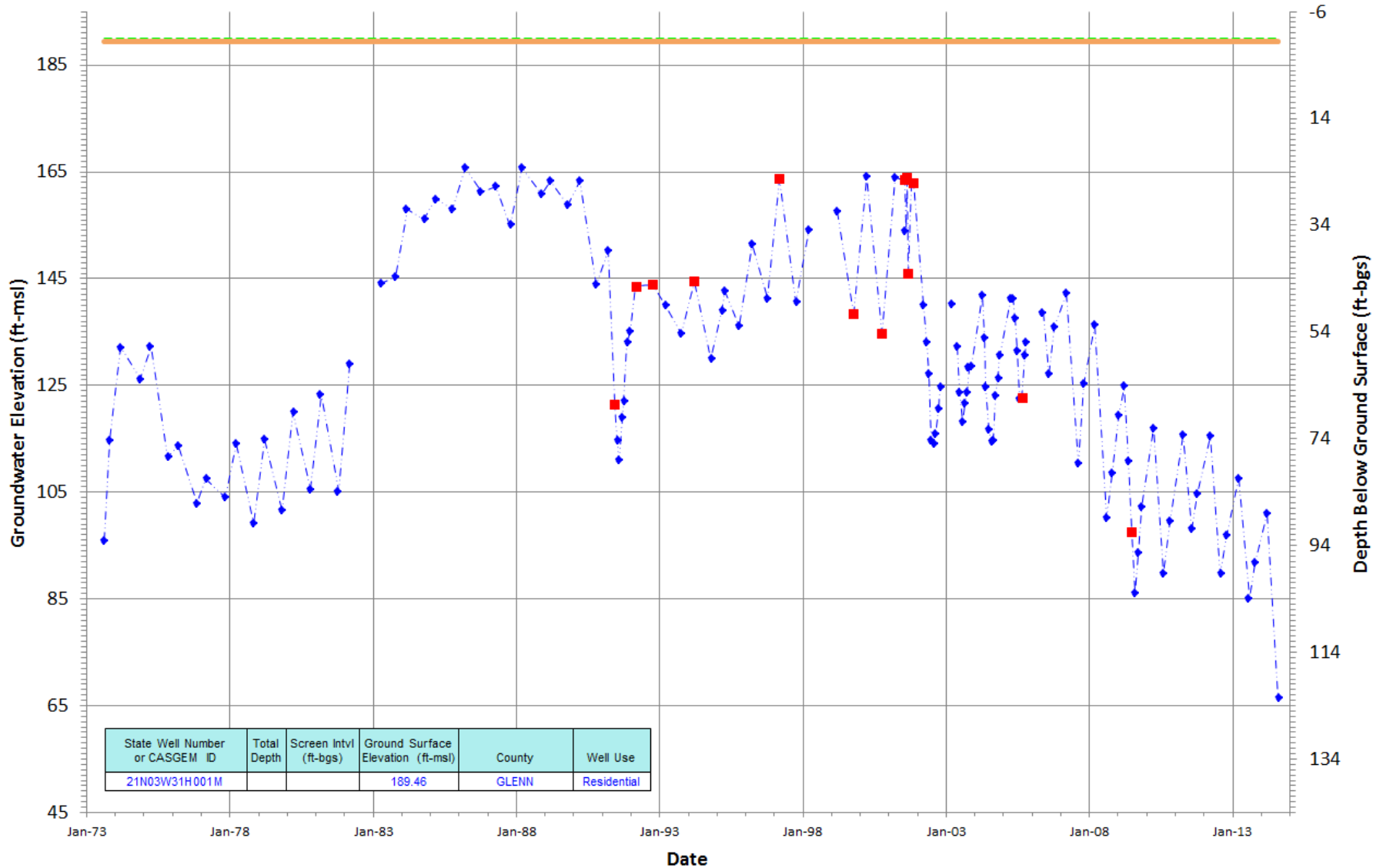


Ground Surface Elev RP Elev Periodic Measurements Questionable Measurements

21N03W31H001M

Period Of Record: 08/10/1973 to 08/04/2014

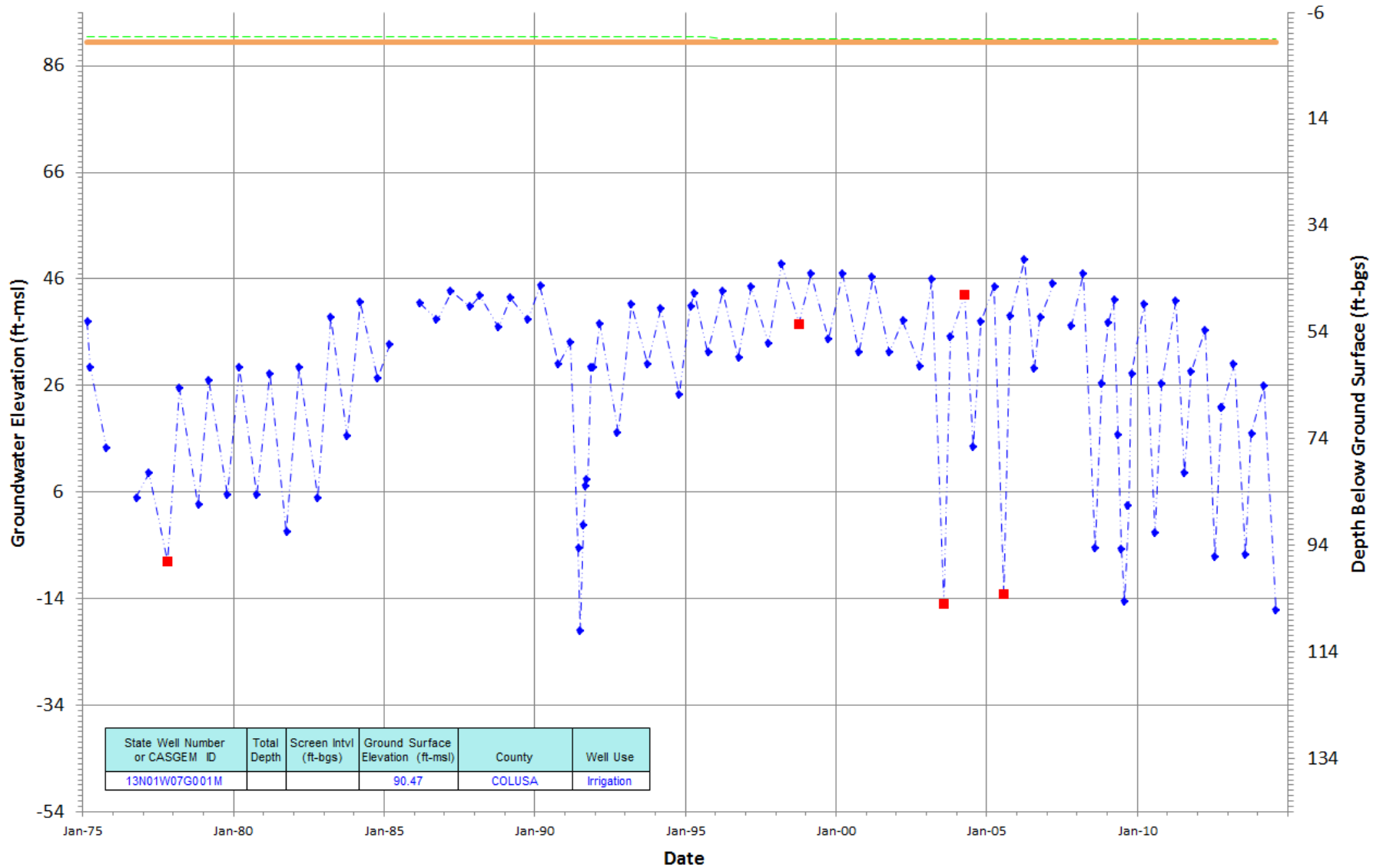
Hydrograph Criteria
State Well Number contains '21n03w31h001'



— Ground Surface Elev
 - - - RP Elev
 - - - ◆ - - - Periodic Measurements
 ■ Questionable Measurements

13N01W07G001M
 Period Of Record: 02/26/1975 to 08/05/2014

Hydrograph Criteria
 State Well Number contains '13n01w07g001'



Ground Surface Elev RP Elev Periodic Measurements Questionable Measurements

Annual Change

2013-2014

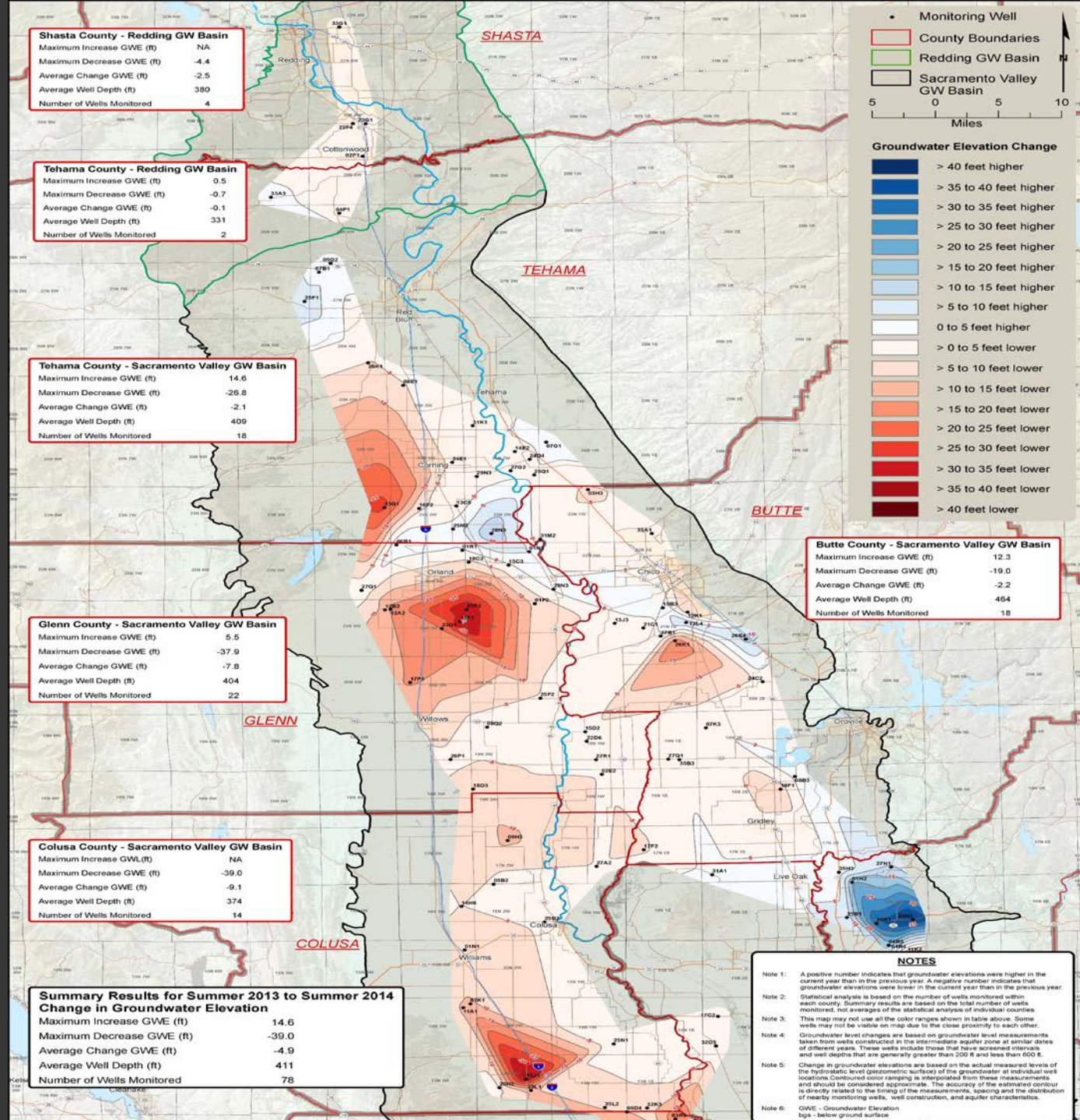
Summer

Intermediate

200 ft



600 ft



Long Term Change

2004-2014

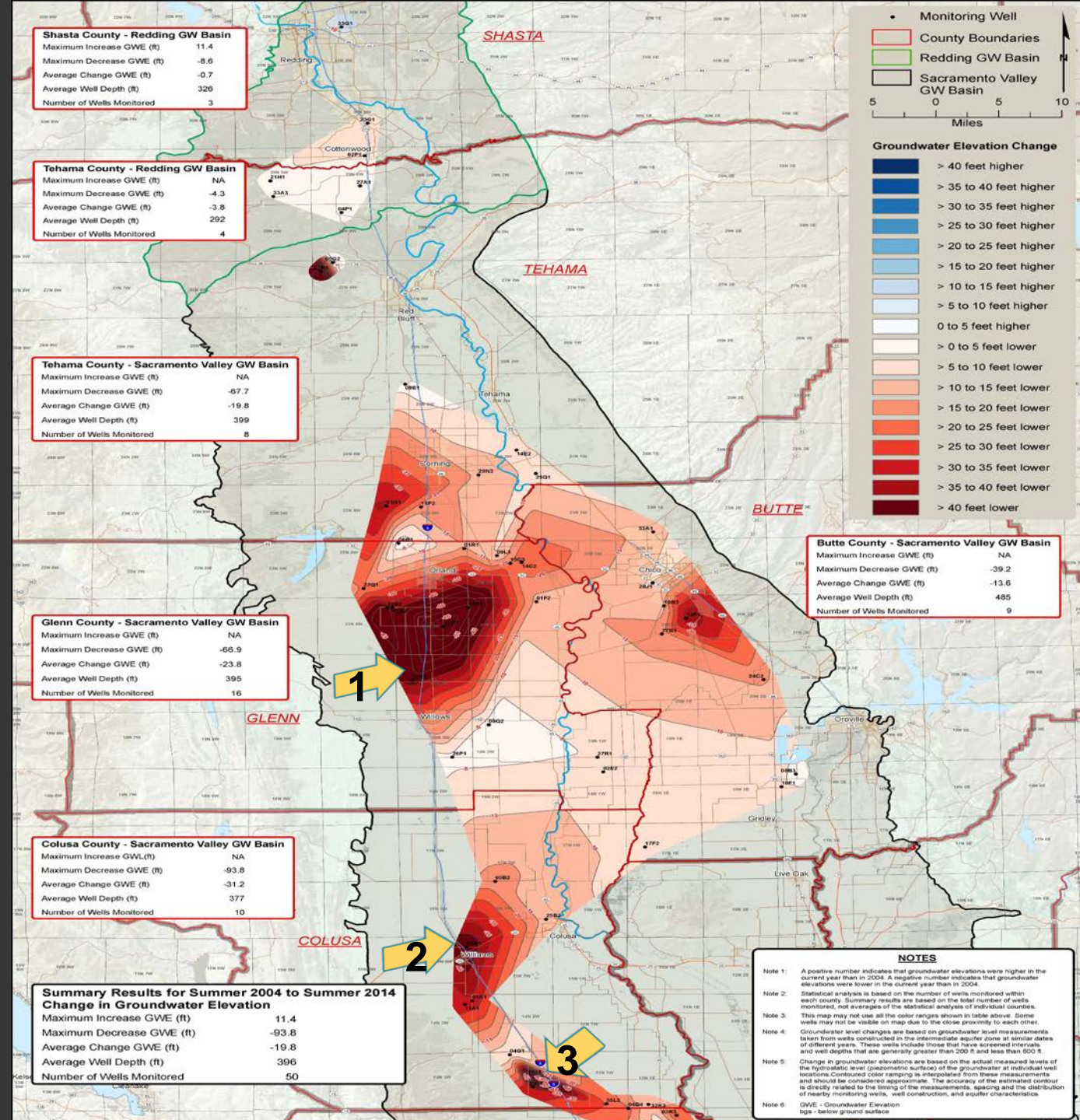
Summer

Intermediate

200 ft

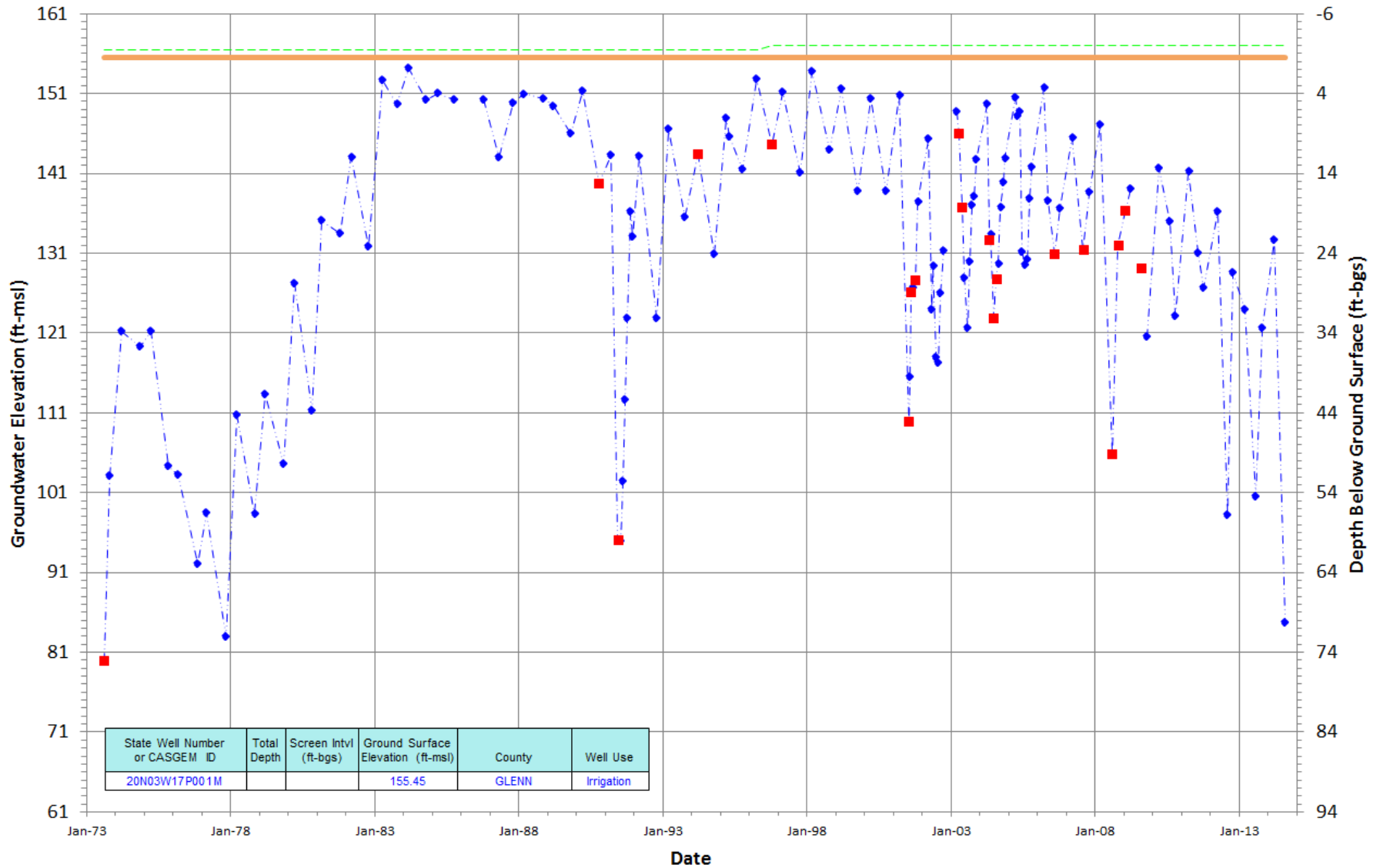


600 ft



20N03W17P001M

Period Of Record: 08/10/1973 to 08/04/2014



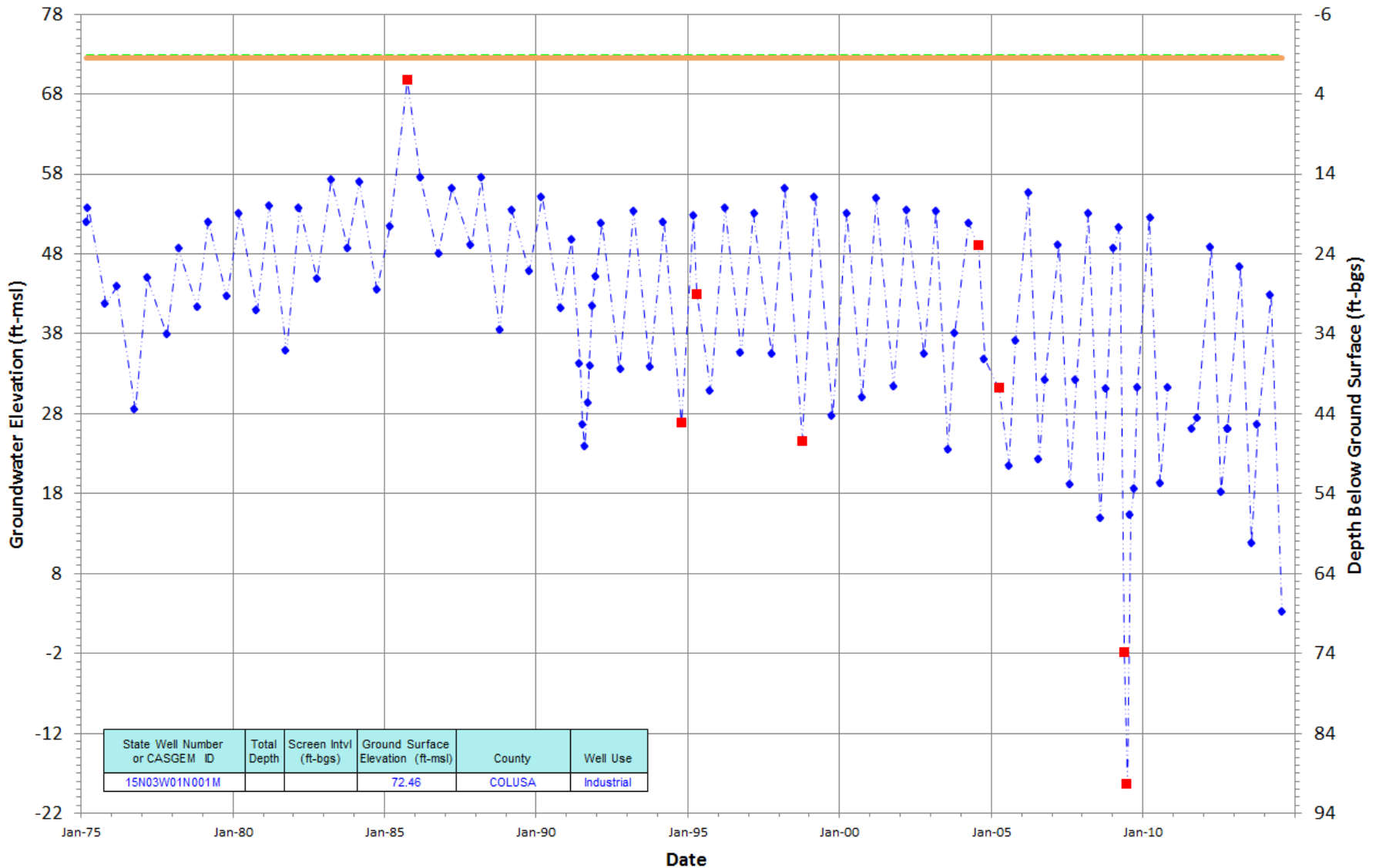
Ground Surface Elev RP Elev Periodic Measurements Questionable Measurements

15N03W01N001M

Period Of Record: 02/27/1975 to 08/05/2014

Hydrograph Criteria

State Well Number contains '15n03w01n001'

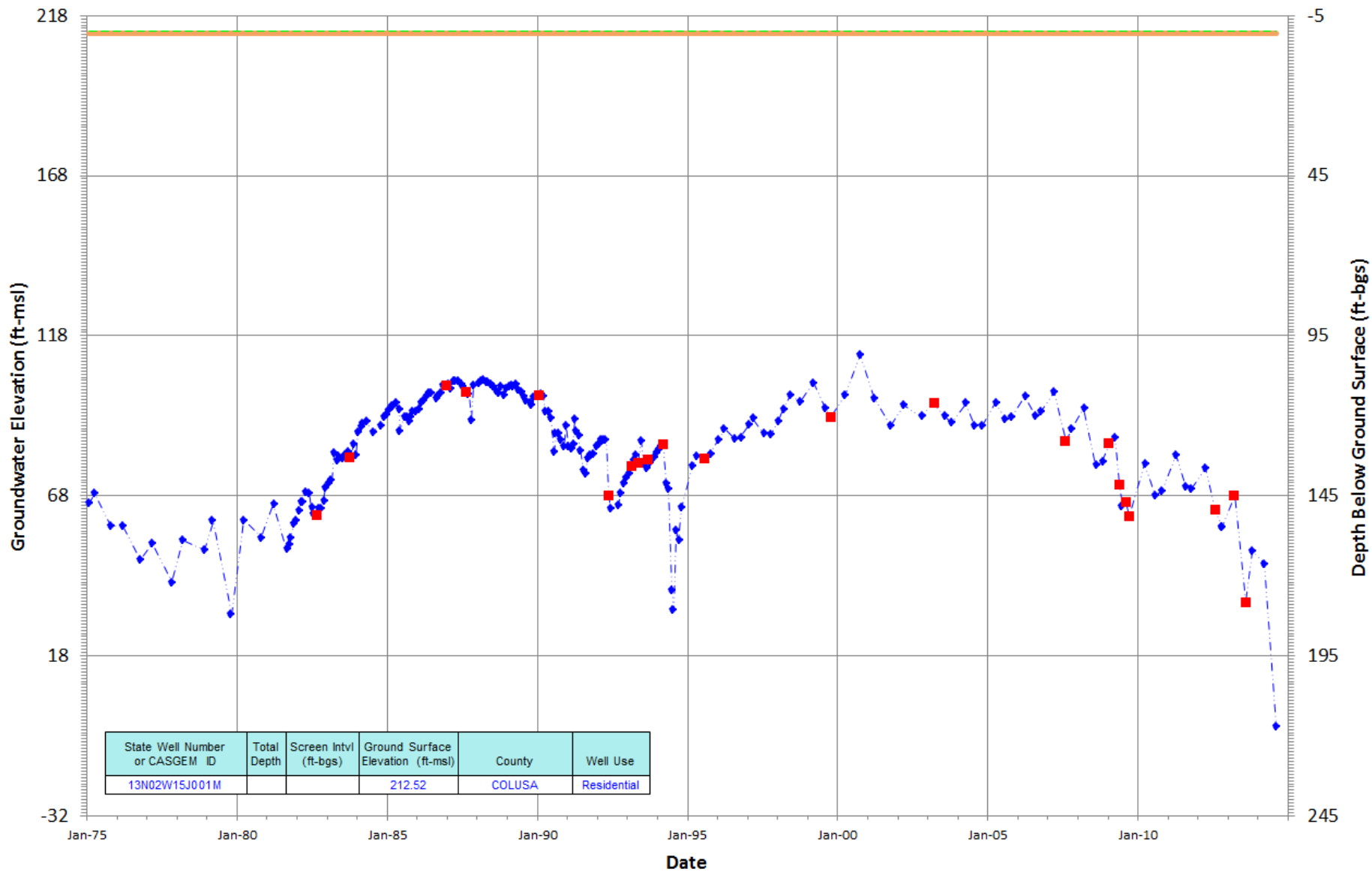


— Ground Surface Elev
 - - - RP Elev
 - - - ◆ - - - Periodic Measurements
 ■ Questionable Measurements

13N02W15J001M

Period Of Record: 01/28/1975 to 08/05/2014

Hydrograph Criteria
State Well Number contains '13n02w15j001'



Ground Surface Elev RP Elev Periodic Measurements Questionable Measurements

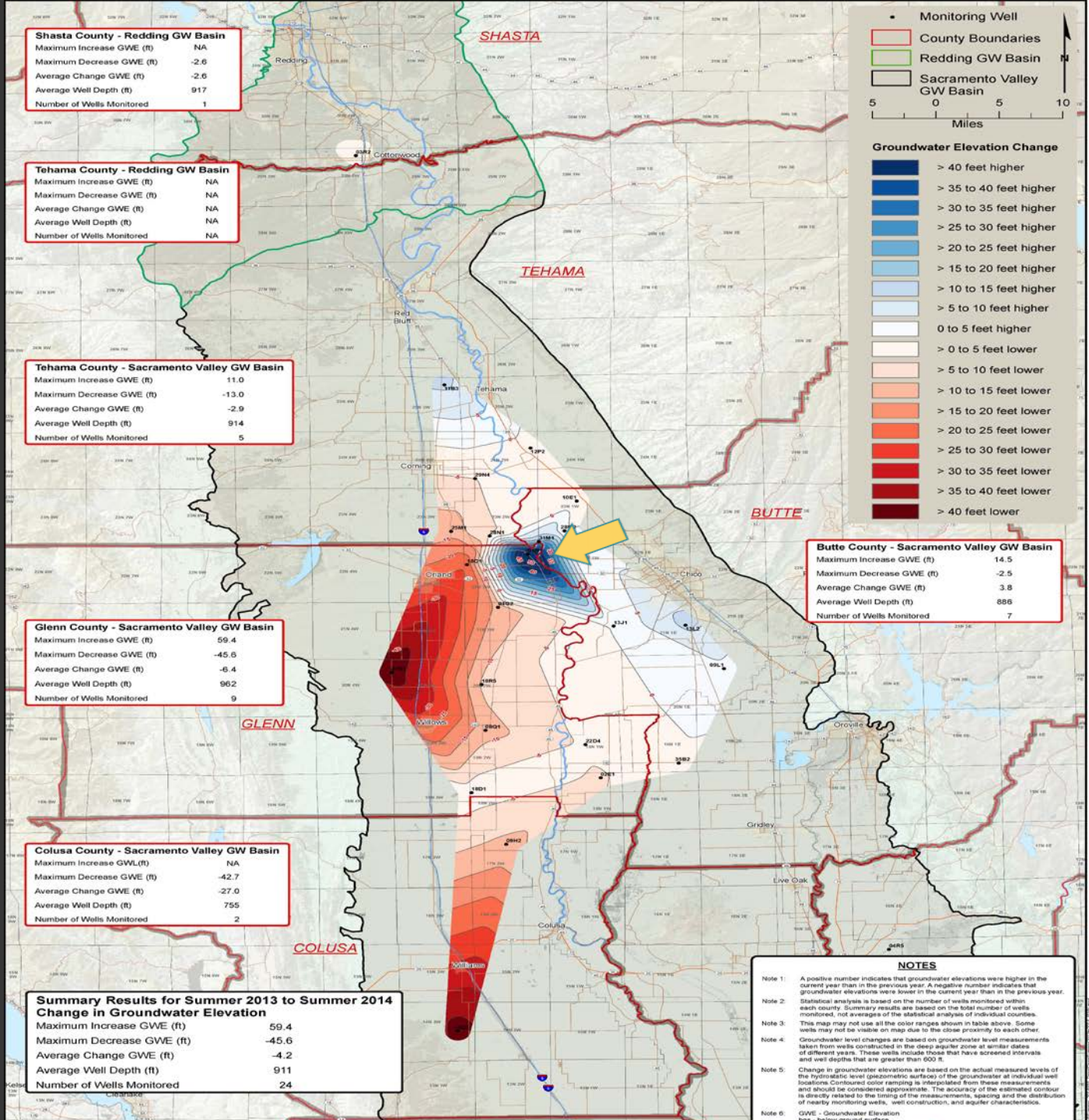
Annual Change

2013-2014

Summer

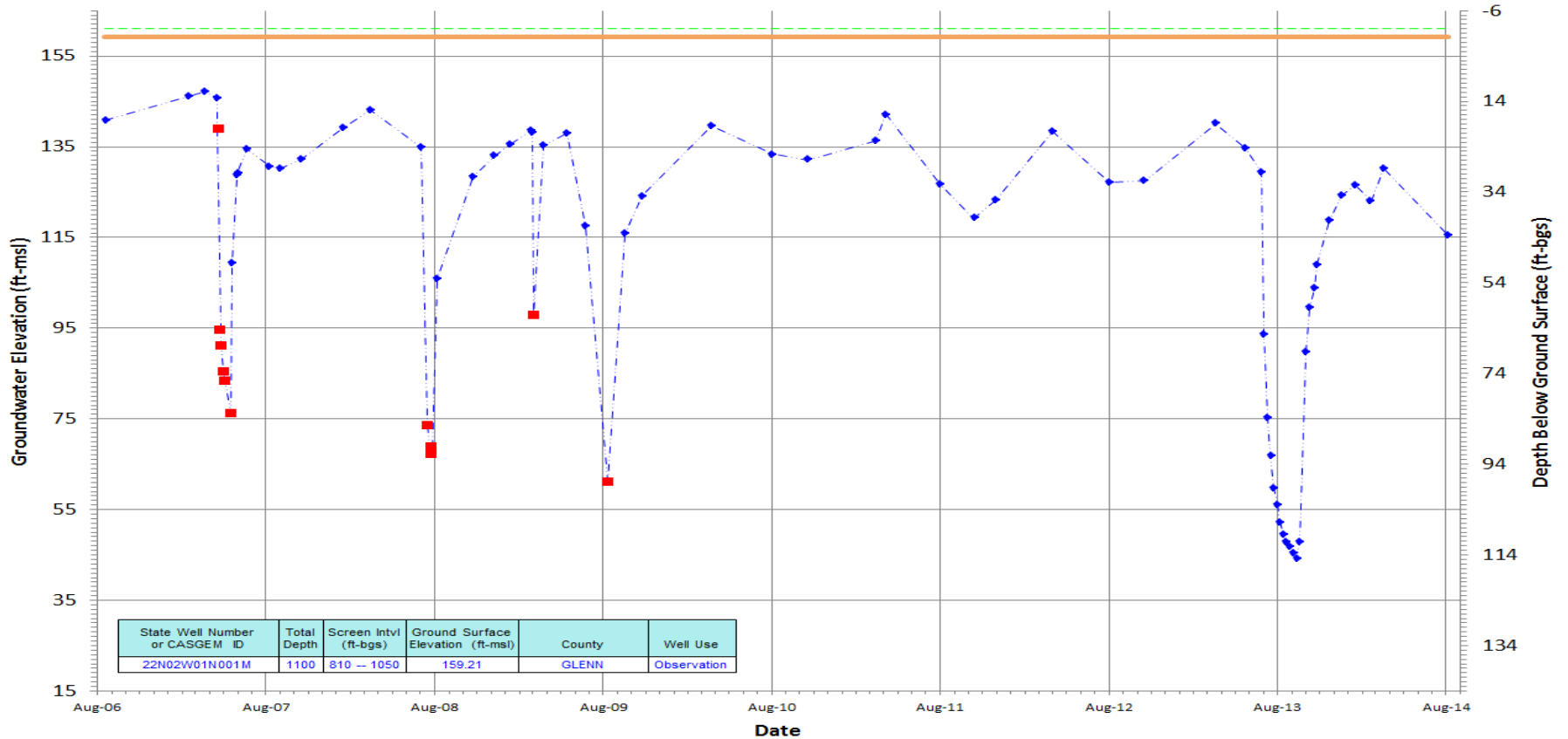
Deep

Greater Than 600 ft



22N02W01N001M
 Period Of Record: 08/17/2006 to 08/06/2014

Hydrograph Criteria
 State Well Number contains '22n02w01n001'



State Well Number or CASGEM ID	Total Depth	Screen Intvl (ft-bgs)	Ground Surface Elevation (ft-msl)	County	Well Use
22N02W01N001M	1100	810 -- 1050	159.21	GLENN	Observation

— Ground Surface Elev - - - RP Elev - - - ♦ - - - Periodic Measurements ■ Questionable Measurements

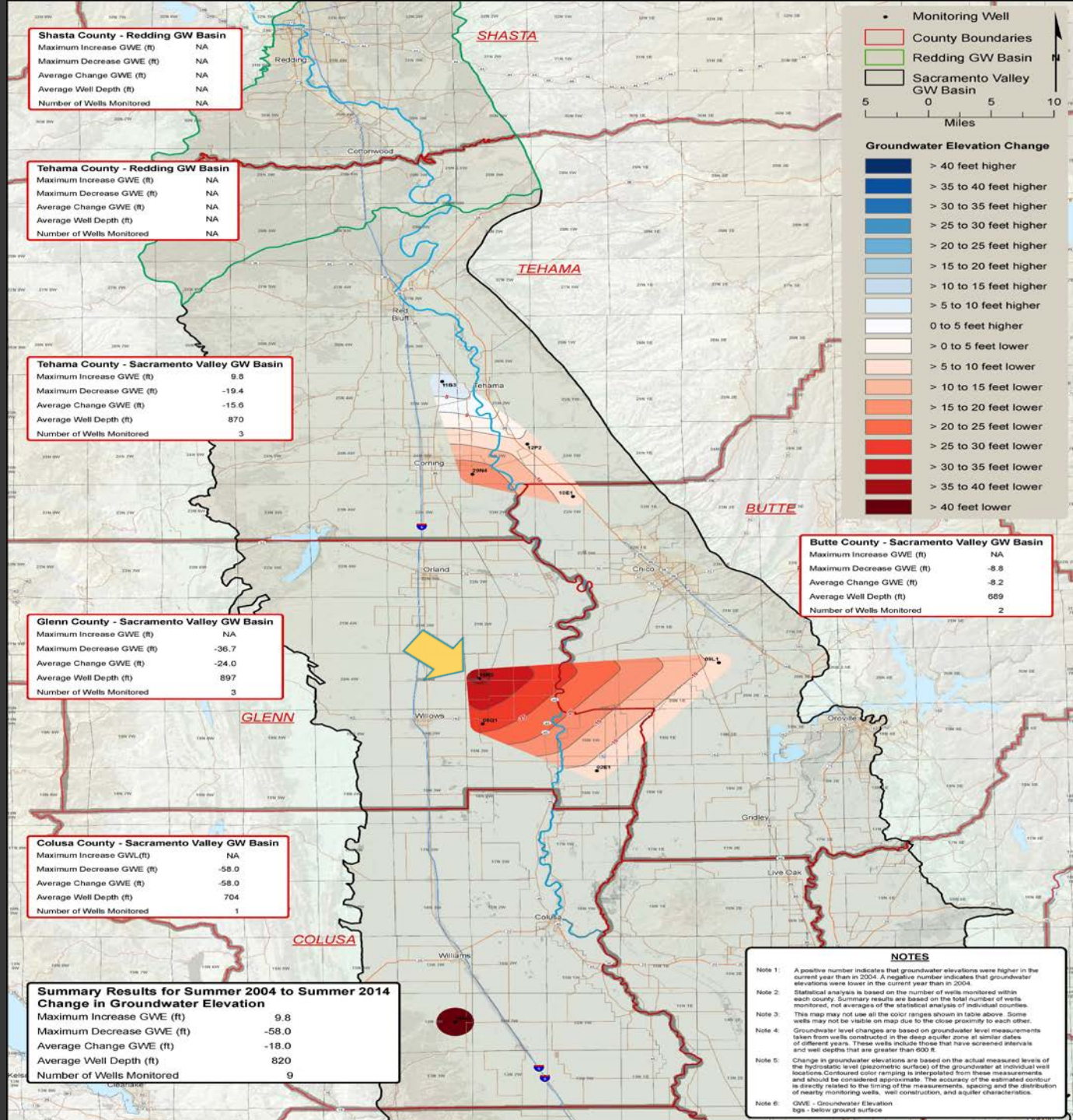
Long Term Change

2004-2014

Summer

Deep

Greater Than
600ft

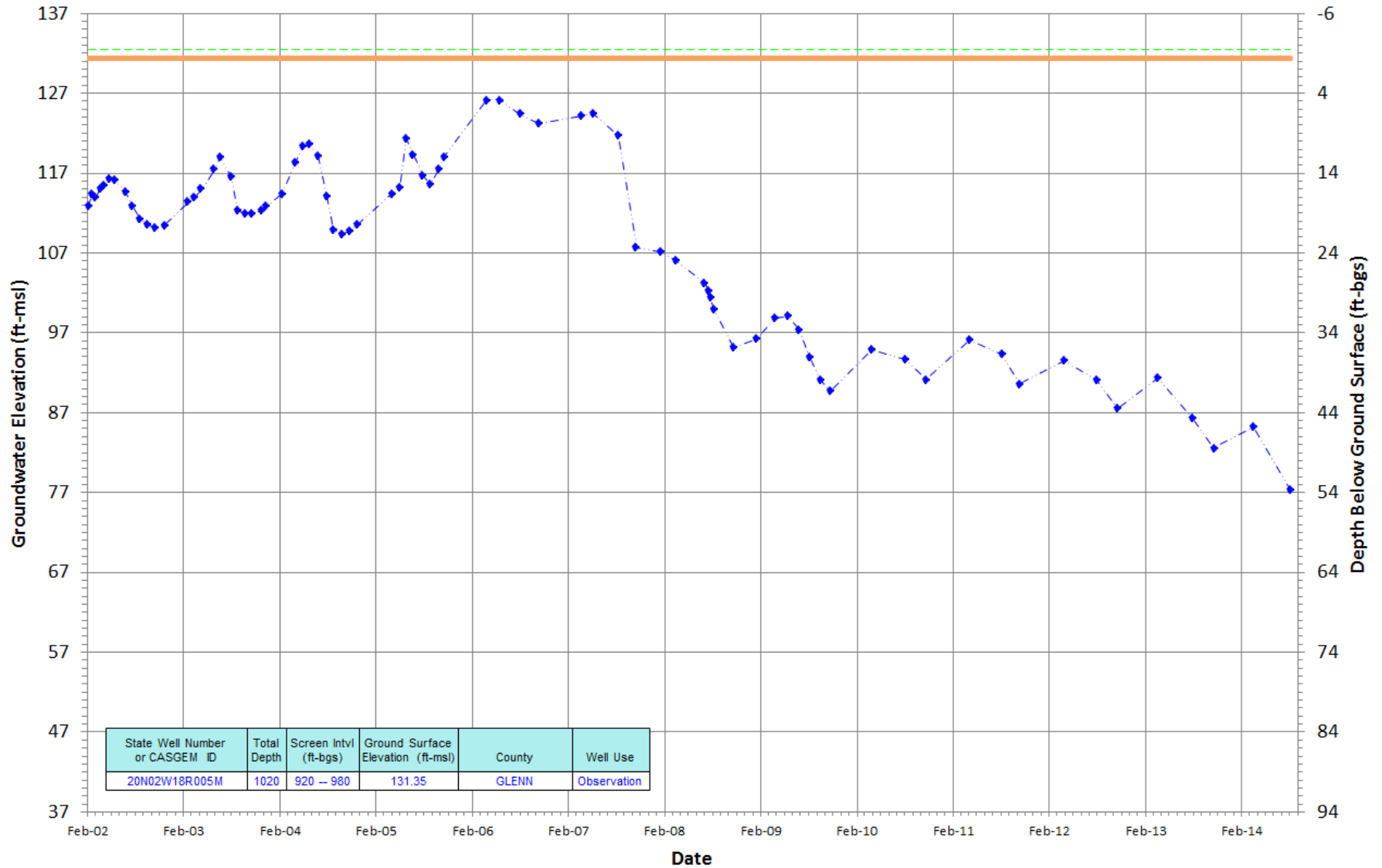


20N02W18R005M

Period Of Record: 02/05/2002 to 08/06/2014

Hydrograph Criteria

State Well Number contains '20n02w18r005'



— Ground Surface Elev
 - - - RP Elev
 - - - ◆ - - - Periodic Measurements
 ■ Questionable Measurements

DWR Groundwater Information Center



<http://water.ca.gov/groundwater/>

New GW Information Center

The screenshot shows the homepage of the Groundwater Information Center. At the top, there is a navigation bar with the CA.GOV logo, the text 'CALIFORNIA DEPARTMENT OF WATER RESOURCES', and links for 'HOME', 'NEWSROOM & EVENTS', 'ISSUES', and 'ABOUT US'. A search bar is located on the right side of the navigation bar. Below the navigation bar is a large blue banner with the text 'Groundwater Information Center' and a background image of a water pipe. The main content area is divided into three columns. The left column contains an 'Introduction' section with two paragraphs of text. The middle column contains three sections: 'Interactive Map of Groundwater Information and Data', 'Groundwater Conditions', and 'Highlights'. The right column contains a 'Groundwater Information Center' section with a list of links to various resources, including 'Groundwater Basics', 'Groundwater Management', 'Groundwater Well Information', 'Groundwater Data Reports', and 'Groundwater Data and Monitoring'. The URL 'http://water.ca.gov/groundwater/' is displayed in red text at the bottom of the page.

CA.GOV CALIFORNIA DEPARTMENT OF WATER RESOURCES

HOME NEWSROOM & EVENTS ISSUES ABOUT US

Search

DWR California

Groundwater Information Center

Introduction

The Groundwater Information Center is DWR's portal for groundwater information, groundwater management plans, water well basics, and statewide and regional reports, maps and figures. California's groundwater provides approximately 30 to 46 percent of the State's total water supply, depending on wet or dry years, and serves as a critical buffer against drought and climate change. Some communities in California are 100 percent reliant upon groundwater for urban and agricultural use.

DWR has a long-standing history of collecting and analyzing groundwater data, investigating and reporting groundwater conditions, implementing local groundwater assistance grants, encouraging integrated water management, and providing the technical expertise needed to improve groundwater management practices. DWR will continue to work with local agencies and regional organizations to provide data that enables sustainable groundwater management. The Groundwater Information Center website will be updated as new information becomes available.

Interactive Map of Groundwater Information and Data

In July 2014, DWR released its experimental version of a **new interactive map application** to view and download selected groundwater information and data. The Department intends to test this **interactive map application** internally while also providing a beta version to the public.

Groundwater Conditions

On April 30th, 2014, a **Drought Response** report was completed by DWR and delivered to the Governor's office as required by the **Governor's Drought Declaration (January, 2014)**. High-resolution figures from this report are available in the **Groundwater Data Reports** section of the Groundwater Information Center.

Groundwater Information Center

- Groundwater Basics
- Groundwater Management
 - Key Legislation
 - Groundwater Management Plans
 - Developing a Groundwater Management Plan
- Groundwater Well Information
 - Well Completion Reports
 - Well Standards
 - Well Inquiries
 - Well Permitting Agencies
- Groundwater Data Reports
- Groundwater Data and Monitoring
 - CASGEM
 - Water Data Library

Highlights

- Interactive Map Application (New)
- Drought Response – Groundwater, April 2014
- Groundwater Management Plans
- Drought Info
- B118 - "California's Groundwater"
- Contacts

<http://water.ca.gov/groundwater/>



Groundwater Information Center

Groundwater Data Reports

Groundwater data and related information can be reported in a variety of formats, including maps, figures, and written reports.

This page provides access to PDF documents which report groundwater conditions in a variety of formats. Documents are organized by report type (for example, "Groundwater Level Change Maps") and by region. Statewide reports, or reports that cover large regions of the state are found on this page, whereas local reports are available at Region Office Reports and Data below. Please note that data reports and other information is being added to this page regularly.

Figures from "Public Update for Drought Response - April 30, 2014"

- + Figures 1 through 9
- + Figures 10 through 18
- + Figures 19 through 27

Statewide Reports

- + Groundwater Level Change Maps

Reports and Data Organized by Regional Office

Groundwater data collection, management, and reporting typically occurs at a regional level, and is conducted by staff at one of the **four Department Region Offices**.

- + Northern Region
- + North Central Region
- + South Central Region
- + Southern Region

Download Geospatial Data

Use the **NEW Groundwater Information Center Interactive Map** to view and download selected groundwater related GIS data.

Groundwater Information Center

- » Groundwater Basics
- » Groundwater Management
 - » Key Legislation
 - » Groundwater Management Plans
 - » Developing a Groundwater Management Plan
- » Groundwater Well Information
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 - » CASGEM
 - » Water Data Library
- » Highlights
 - » Interactive Map Application (New)
 - » Drought Response – Groundwater, April 2014
 - » Groundwater Management Plans
 - » Drought Info
 - » B118 - "California's Groundwater"
- » Contacts



Maps
and
More
Maps

California Department of Water Resources
Groundwater Information Center
Map Interface

Data Boundaries Disclaimer

County Boundaries

County Boundary

Bulletin 118 Groundwater Basins

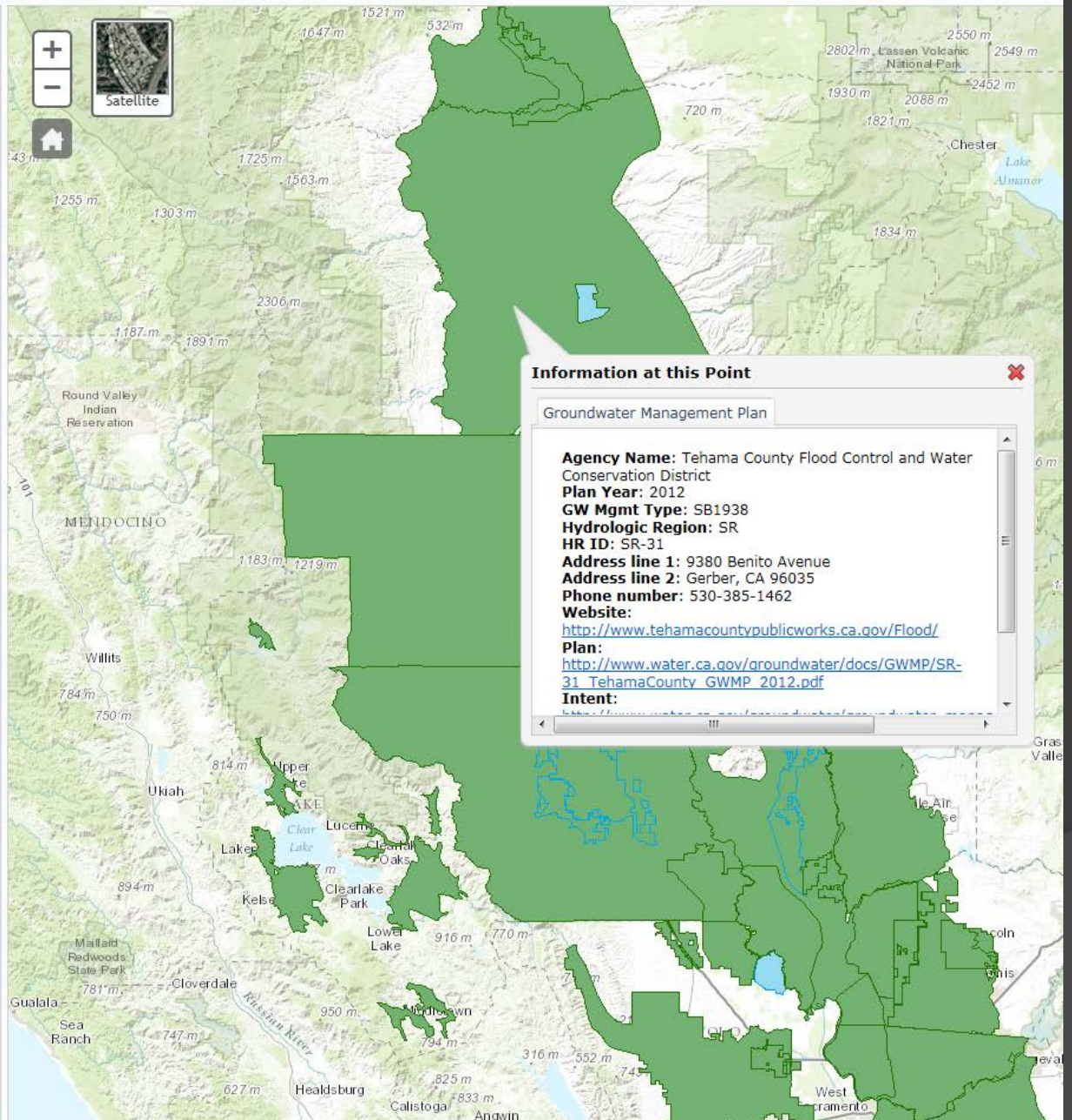
Groundwater Basin

Groundwater Management Plans

- AB 359
- SB 1938
- AB 3030

CASGEM Groundwater Basin Prioritization

- High
- Medium
- Low
- Very Low



California Department of Water Resources
Groundwater Information Center
Map Interface

Data Boundaries Disclaimer

County Boundaries

County Boundary

Bulletin 118 Groundwater Basins

Groundwater Basin

Groundwater Management Plans

AB 359

SB 1938

AB 3030

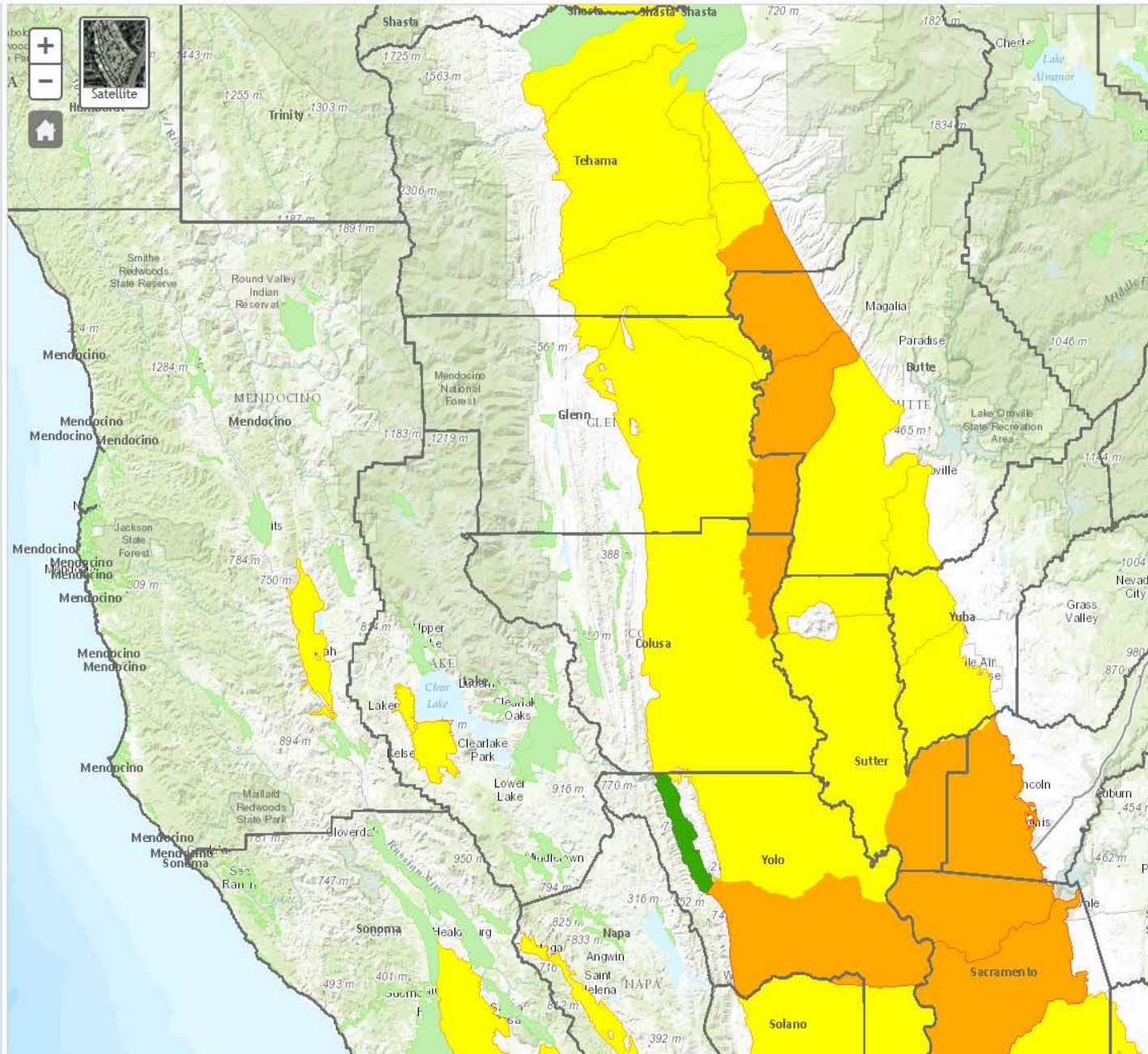
CASGEM Groundwater Basin Prioritization

High

Medium

Low

Very Low



Water Data Library

CA.GOV | DEPARTMENT OF WATER RESOURCES

Home | Newsroom | Flood & Safety | Planning | State Water Project | Funding | Environment | Supply & Use | Data

CDEC | CIMIS | WDL | IEP | IWRIS | All Data Topics...

Water Data Library

Use the map below to locate monitoring stations. You can find an area of interest if you zoom and pan the map. Quickly find an area searching for named features on a map such as the name of a city, park, landmark, lake, water feature, or zip code within California. Once at the area of interest, select the desired Site Type and click the "Refresh Map" button to show monitoring stations in the area. Additional searches by data type are possible by clicking the links on the left. For help on these and other ways to find your data [click here](#).

WDL STATION MAP

Location Search
To find monitoring stations for a specific area, enter the placename or zip code into the text box below then, click the "Search" button.

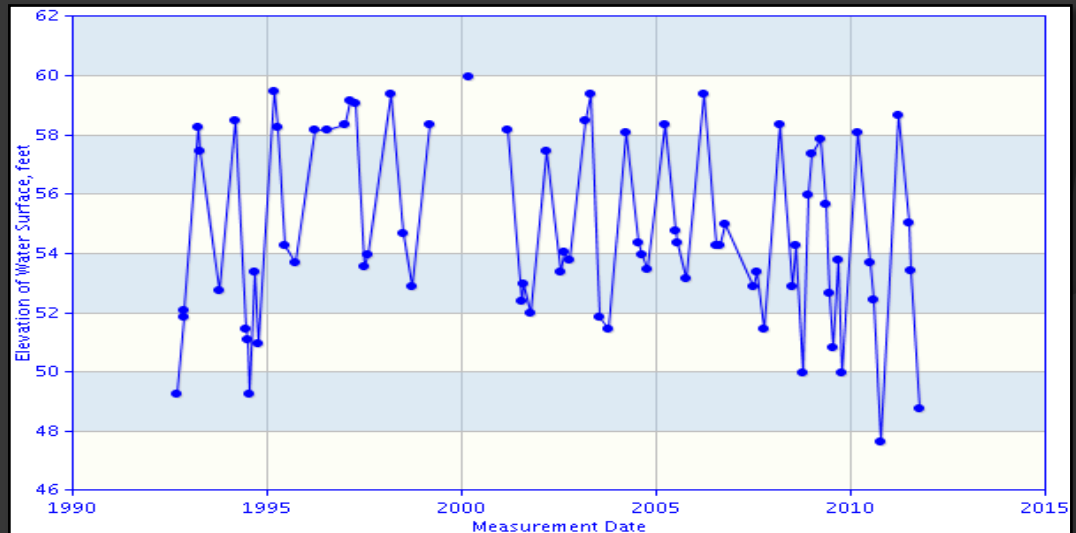
Site Type
Select the desired site type using the checkboxes, then click the "Refresh" button.

Groundwater Level
 Water Quality
 Continuous Data

● Multi-parameter site
● Cluster, showing number of stations

Map Center: 39.821194, -121.788940
Map SW: 38.967951, -123.442383
Map NE: 40.663973, -120.135498
Map Zoom: 8

Mouse Lat/Lon: 40.241799, -122.969971
Mouse E: 10382, 24753
Mouse I/E: 40, 96
Mouse Click:



Thank You

Questions?



California Department of Water Resources
Groundwater Information Center
Map Interface

Data Boundaries Disclaimer

Groundwater Level Measurements

Data Type:

- Depth Below Ground
- Groundwater Elevation
- Change in Groundwater Level

Selection Parameters:

- 2013 Select Year
Spring Select Season
2003 to 2013 Select Period


(Change in Groundwater Level Only)

Show Layers:




- Measurements
- Contours
- Color Ramp

Legend:

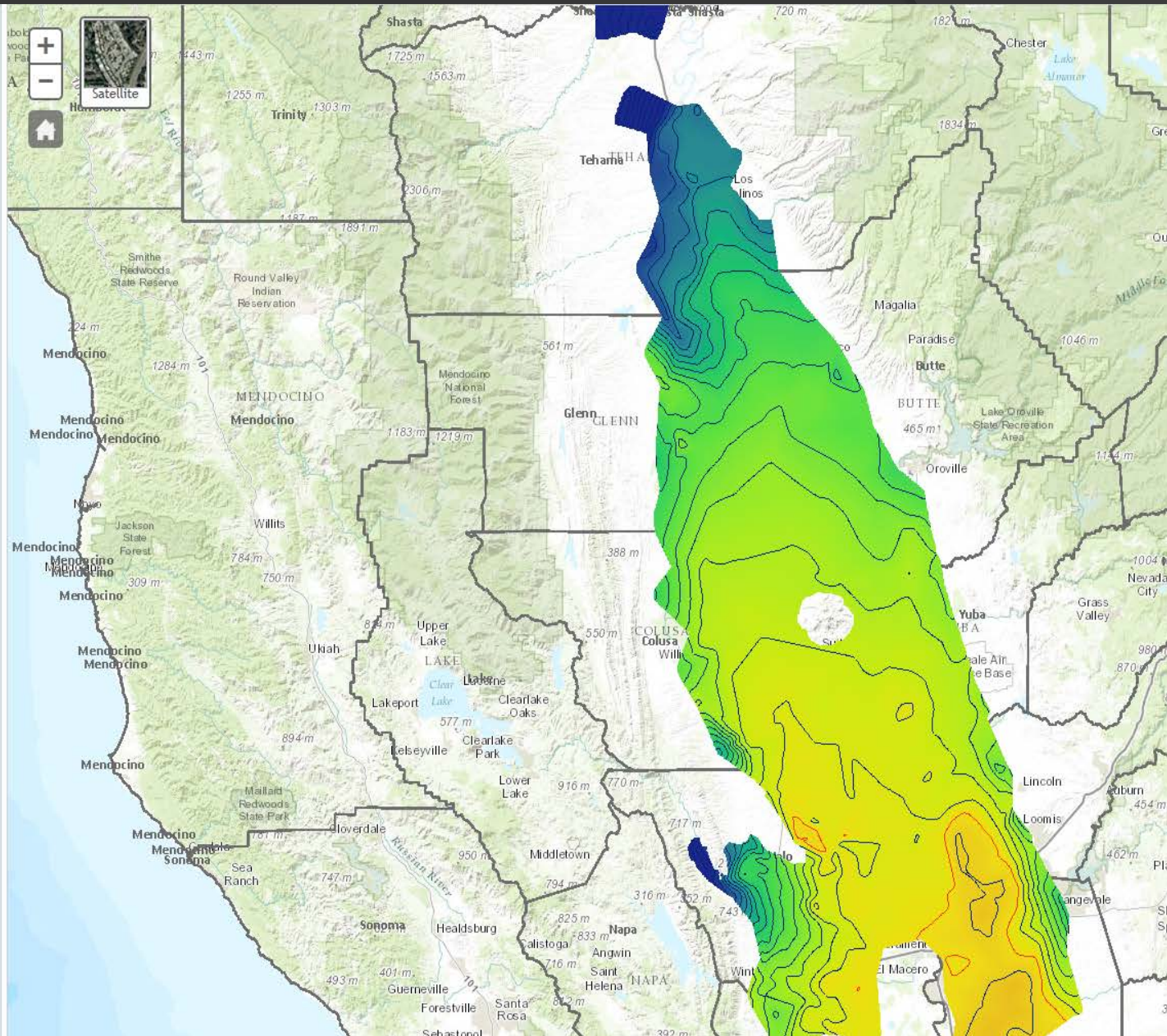
Measurements

-  Groundwater Elevation Measurement

Contours

-  Sea Level
-  Primary Contour
-  Secondary Contour

Color Ramp



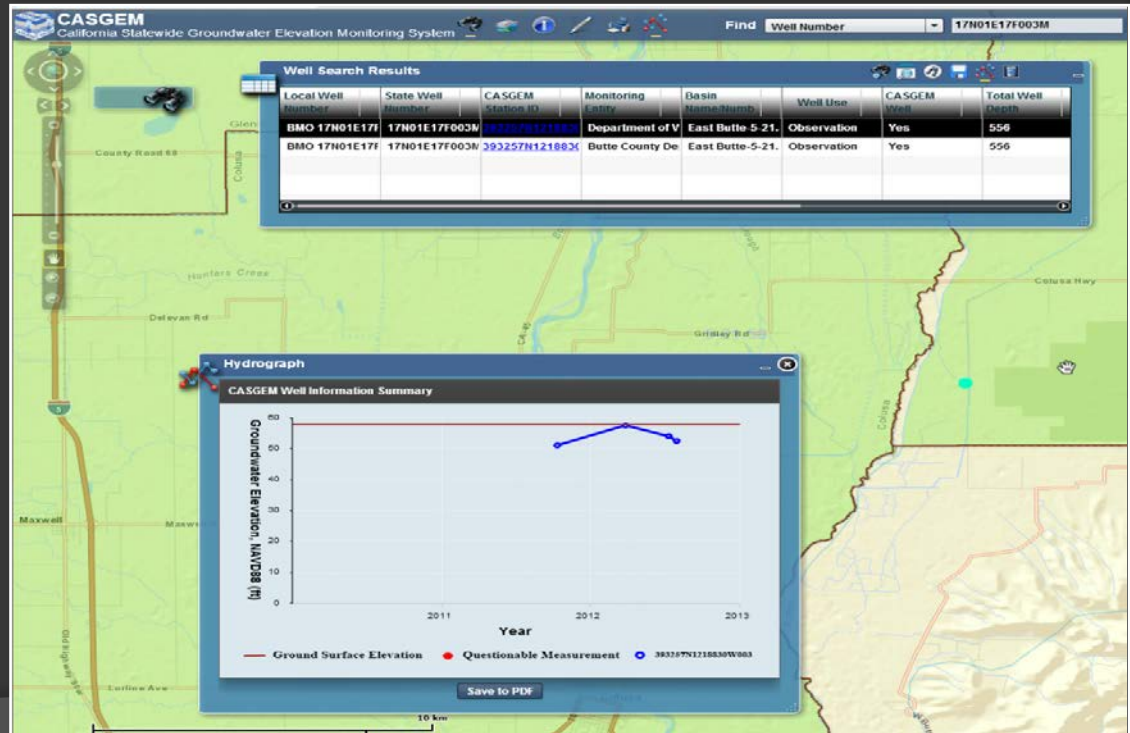
CASGEM

Welcome to the California Statewide Groundwater Elevation Monitoring (CASGEM) Online System

The CASGEM Online System now allows you to:

- Register as an "Administrator" for a Monitoring Entity to maintain the Monitoring Entity's profile and create and maintain user accounts for yourself and collaborating agencies.
- Submit a Notification that your organization intends to assume the role of Monitoring Entity for a California groundwater basin, sub-basin, or portion of a sub-basin, including:
 - Organization details and contact information
 - The monitoring entity authority that best describes you (Water Code Section 10927)
 - GIS shapefiles that define the boundary of the area you intend to monitor
 - A groundwater management plan and/or monitoring plan
 - CASGEM well construction details and location information
- Submit groundwater elevation data (including batch uploads).
- View lists of local agencies, counties and associations who have volunteered to serve as CASGEM Monitoring Entities providing groundwater data statewide
- View CASGEM Monitoring Plans and Groundwater Management Plans (via hyperlink)
- Search and view groundwater elevation data in tabular format
- View hydrographs for single wells and compare hydrographs for multiple wells
- Search and view groundwater monitoring well information
- View mapped locations of CASGEM wells, monitoring area boundaries, and other geographic information
- Measure distances between wells and size of monitoring areas and basins
- Download well information, groundwater data, hydrographs and maps
- Download summary reports on wells, groundwater elevations, Monitoring Entities and basin information

Please click on one of the above tabs to begin. Please look at this [help](#) file for answers to common questions.



2014 Sustainable GW Management Legislation

Bills: AB 1739; SB 1168, & SB 1319

Bill Info: <http://www.leginfo.ca.gov/bilinfo.html>

- **Establishes a definition of “sustainable groundwater management”**
“The management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.”
- **Requires that a groundwater sustainability plan be adopted for the most important groundwater basins in California**
 - Limited to “high & medium priority basins” – 127 out of 515 basins in the state
 - Adjudicated basins are exempt (except for minimal reporting), bringing the number to fewer than 100 affected basins.
 - “Low & very low priority” basins are exempt, though they are encouraged to adopt plans.



2014 Sustainable GW Management Legislation

- **Establishes a timetable for adoption of groundwater sustainability plans**
 - By 2017, local groundwater sustainability agencies must be identified.
 - By 2020, overdrafted basins must be covered by a groundwater sustainability plan. Other high & medium priority basins not in overdraft must have plans by 2022.
 - By 2040, each high & medium priority basin must achieve sustainability, though this can be extended by 10 years for good cause.
- **Empowers local agencies to manage their basins sustainably**
 - Gives local agencies new authority to adopt and enforce rules, require reporting, raise funds and build new water projects
 - Department of Water Resources will provide technical assistance to local agencies
- **Establishes basic requirements for groundwater sustainability plans**
 - Long-term planning and implementation horizon
 - Measurable objectives and interim milestones to achieve sustainability in 20 years
 - Most requirements similar to the current, voluntary groundwater plan requirements adopted 22 years ago.

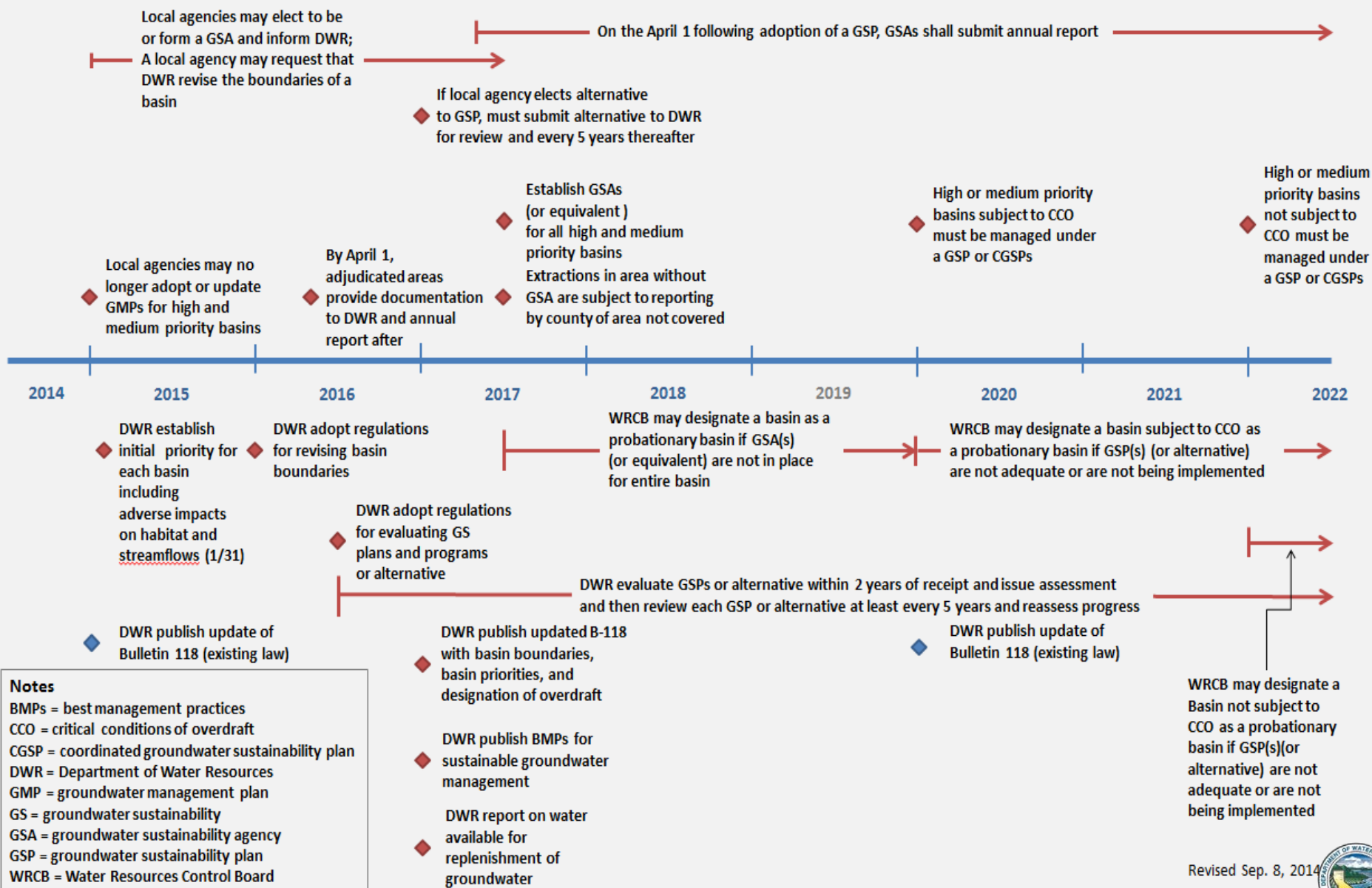


2014 Sustainable GW Management Legislation

- **Provides for a limited state role**
 - DWR will evaluate groundwater sustainability plans within two years of submission.
 - State Water Board may temporarily intervene in four limited circumstance.
 - No governance structure for a basin after 2 ½ years
 - No plan after five years (overdrafted basins) or ten years (other basins)
 - Plan is inadequate and the basin has serious groundwater problems
 - Local agency has not adequately implemented the plan and the basin has serious groundwater problems
- **State Board must return control to local agencies as soon as they adopt an adequate plan.**
- **State Board may limit its temporary control to the portion of the basin not being managed.**



Key Milestones for Sustainable Groundwater Management Legislation



- Notes**
- BMPs = best management practices
 - CCO = critical conditions of overdraft
 - CGSP = coordinated groundwater sustainability plan
 - DWR = Department of Water Resources
 - GMP = groundwater management plan
 - GS = groundwater sustainability
 - GSA = groundwater sustainability agency
 - GSP = groundwater sustainability plan
 - WRCB = Water Resources Control Board

