

# Cuyama Valley Groundwater Basin

## Draft Groundwater Sustainability Plan: Data Management System

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April 2019

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## Table of Contents

<b>Chapter 6 Data Management System.....</b>	<b>6-1</b>
6.1 DMS Overview .....	6-1
6.2 DMS Functionality .....	6-1
6.2.1 User and Data Access Permissions .....	6-2
6.2.2 Data Entry and Validation .....	6-3
6.2.3 Visualization and Analysis .....	6-6
6.2.4 Query and Reporting .....	6-7
6.3 Data Included in the DMS .....	6-8

## Tables

Table 6-1. Data Management System User Types/Access .....	6-2
Table 6-2. Data Collection Site Information .....	6-4
Table 6-3. Data Types and Their Associated Parameters Configured in the DMS.....	6-9
Table 6-4. Sources of Data Included in the Data Management System .....	6-11

## Figures

Figure 6-1. Screenshot of Opti Platform. ....	6-1
Figure 6-2: Screenshot of Opti Login Screen.....	6-3
Figure 6-3. Screenshot of Data Entry Tool Interface. ....	6-5
Figure 6-4. DMS Map View.....	6-7

## Appendices

Appendix A Cuyama Basin Data Management System Opti Data Public User Guide	
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## Acronyms

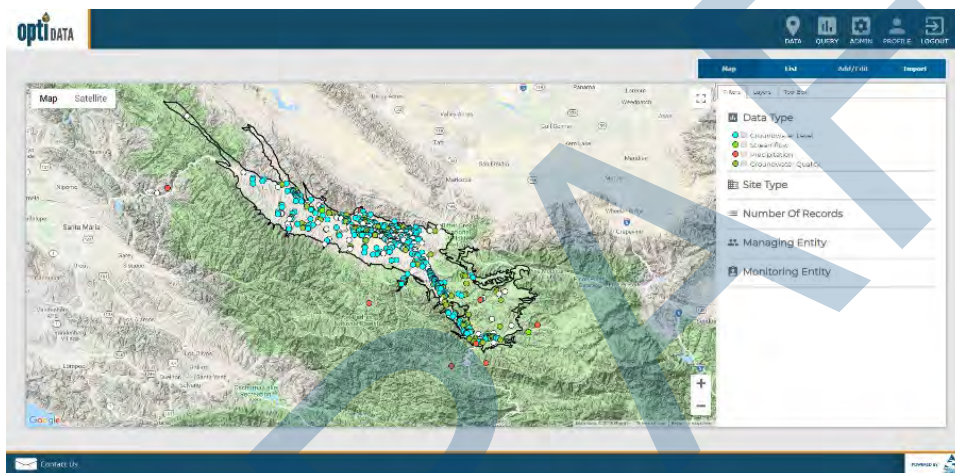
CASGEM	California Statewide Groundwater Elevation Monitoring Program
CBGSA	Cuyama Basin Groundwater Sustainability Agency
CEDEN	California Environmental Data Exchange Network
DEM	digital elevation model
DMS	Data Management System
DWR	California Department of Water Resources
GAMA	Groundwater Ambient Monitoring and Assessment Program
GICIMA	Groundwater Information Center Interactive Map
GSE	ground surface elevation
GSP	Groundwater Sustainability Plan
ID	identification number
MSC	Master State Well Code
SGMA	Sustainable Groundwater Management Act
TDS	total dissolved solids
USGS	United States Geological Survey
USGS	United States Geological Survey
WDL	Water Data Library

## Chapter 6 Data Management System

This chapter includes an overview of the Cuyama Basin Data Management System (DMS), describes how the DMS works, and details the data used in the DMS. This chapter satisfies Section 352.6 of the Sustainable Groundwater Management Act (SGMA) regulations.

### 6.1 DMS Overview

The Cuyama Basin DMS uses the Opti platform, which is a flexible and open software platform that uses familiar Google maps and charting tools for analysis and visualization. The DMS serves as a data-sharing portal that enables use of the same data and tools for visualization and analysis. These tools support sustainable groundwater management and create transparent reporting on collected data and analysis results. Figure 6-1 is a screenshot of the Opti platform.



**Figure 6-1. Screenshot of Opti Platform.**

The Cuyama Basin DMS is a web-based publicly accessible portal that may be viewed using common web browsers such as Google Chrome, Firefox, and Microsoft Edge. The DMS utilizes Google maps and other charting tools for analysis and visualization. The site may be accessed at <http://opti.woodardcurran.com/cuyama>.

### 6.2 DMS Functionality

The DMS is a modular system that includes numerous tools to support GSP development and ongoing implementation, including the following:

- User and data access permissions
- Data entry and validation
- Visualization and analysis
- Query and reporting



As the needs of the Cuyama Basin Groundwater Sustainability Agency (CBGSA) change over time, the DMS can be configured for additional tools and functionality. The following sections describe the DMS’s currently configured tools. For more detailed instructions about how to use the DMS, refer to the Cuyama Basin Data Management System Opti Data Public User Guide (Appendix A).

### 6.2.1 User and Data Access Permissions

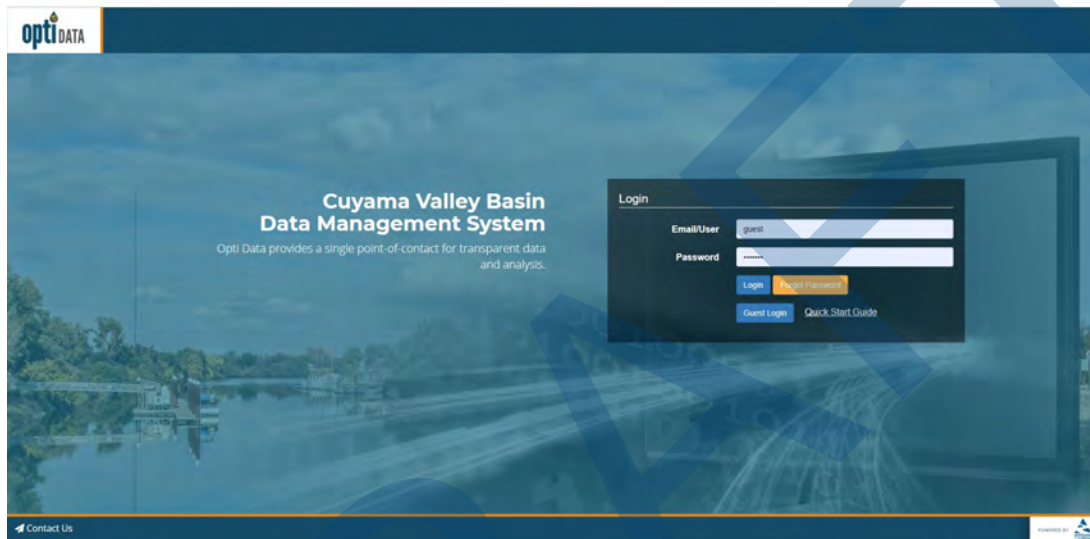
DMS user access permissions are controlled through several user types. These user types have different roles in the DMS as summarized in Table 6-1 below. These user types are broken into three high-level categories as follows:

- **System Administrator** – System administrators manage information at a system-wide level, with access to all user accounts and entity information. System administrators can set and modify user access permissions when an entity is unable to do so.
- **Managing Entity (Administrator, Power User, User)** – Managing entity users are responsible for managing their entity’s site/monitoring data, and can independently control access to these data. Entity users can view and edit their entity’s data and view (but not edit) shared or published data supplied by other entities. An entity’s site information (i.e., wells, gages, etc.) and associated data may only be edited by system administrators and power users associated with the entity. The CBGSA is currently configured as the managing entity for all datasets in the DMS.
- **Public** – Public users may view data that are published, but may not edit any information. Public users may access the DMS using the guest login feature on the DMS login screen (Figure 6-2).

Modules/ Submodules	System Administrators	Managing Entity			Public
		Admin	Power User	User	
Data: Map	Access to all functionality	Access to all functionality	Access to all functionality	Access to all functionality	Access to partial functionality
Data: List	Access to all functionality	Access to all functionality	Access to all functionality	Access to all functionality	Access to partial functionality
Data: Add/Edit	Access to all functionality	Access to all functionality	Access to all functionality	--	--
Data: Import	Access to all functionality	Access to all functionality	Access to all functionality	--	--
Query	Access to all functionality	Access to all functionality	Access to all functionality	Access to all functionality	Access to partial functionality
Admin	Access to all functionality	--	--	--	--

**Table 6-1. Data Management System User Types/Access**

Modules/ Submodules	System Administrators	Managing Entity			Public
		Admin	Power User	User	
Profile	Access to all functionality	Access to all functionality	Access to partial functionality	Access to partial functionality	Access to partial functionality



**Figure 6-2: Screenshot of Opti Login Screen**

Monitoring sites and their associated datasets are added to the DMS by managing entity administrators or power users. In addition to user permissions, access to the monitoring datasets is controlled through assigning one of three options to the data type as follows:

- **Private data** – Private data are monitoring datasets only available for viewing, depending on user type, by the entity’s associated users in the DMS.
- **Shared data** – Shared data are monitoring datasets available for viewing by all users in the DMS, except for public users.
- **Public data** – Public data are monitoring datasets that are available publicly that can be viewed by all user types in the DMS; public datasets may also be published to other websites or DMSs as needed.

Managing entity administrators can set and maintain data access options for each data type associated with their entity.

### 6.2.2 Data Entry and Validation

To encourage agency and user participation in the DMS, data entry and import tools are designed to be easy to use, are accessible over the web, and help maintain data consistency and standardization. The



DMS allows entity administrators and power users to enter data either manually via easy-to-use interfaces, or through an import tool using Microsoft Excel templates, so that data may be entered into the DMS as soon as possible after collection. The data records are validated by a managing entity’s administrators or power users using a number of quality control checks prior to inclusion in the DMS.

### Data Collection Sites

Users can input site information about groundwater wells, stream gages, and precipitation meters manually either through the data entry tool or when prompted in the import tool. Using the data entry tool, new sites may be added by clicking on “New Site.” Existing sites may be updated using the “Edit Site” tool. During data import, the sites associated with imported data are checked by the DMS against an existing site list. If the site is not in the existing site list, the user is prompted to enter the information via the new site tool before the data import can proceed.

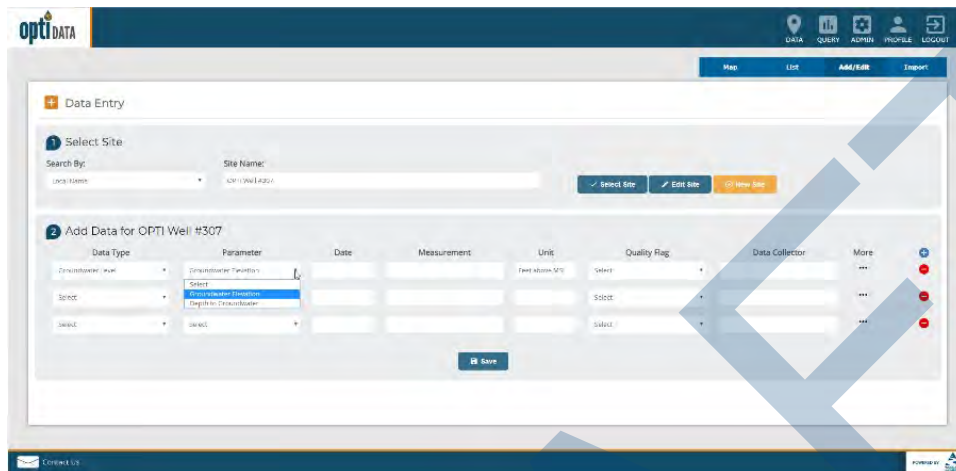
Table 6-2 lists the information that is collected for sites. Required information is indicated with an asterisk; all other information is considered optional.

Table 6-2. Data Collection Site Information		
Basic Information	Well Information	Construction Information
Site Type*	State Well ID	Total Well Depth
Opti Site Name*	MSC (Master State Well Code)	Borehole Depth
Local Site Name*	USGS Code	Casing Perforations Top/Bottom Elevation
Additional Name	CASGEM ID	Casing Diameter
Latitude/Longitude*	Ground Surface Elevation (feet)	Casing Modifications
Description	Reference Point Elevation (feet)	Well Capacity
County	Reference Point Location	Well Completion Report Number
Managing Entity*	Reference Point Description	Comments
Monitoring Entity*	Well Use	
Type of Monitoring	Well Status	
Type of Measurement	Well Type	
Monitoring Frequency	Aquifers Monitored	
	Groundwater Basin Name/Code	
	Groundwater Elevation Begin/End Date	
	Groundwater Elevation Measurement Count	
	Water Level Measurement Method	
	Groundwater Quality Begin/End Date	
	Groundwater Quality Measurement Count	
	Comments	
Notes: ID = identification number MSC = Master State Well Code USGS = United States Geological Survey CASGEM = California Statewide Groundwater Elevation Monitoring Program		



## Monitoring Data Entry

Monitoring data, including groundwater elevation, groundwater quality, streamflow, and precipitation may be input either manually through the data entry tool or by using templates in the import tool. Figure 6-3 is a screenshot of the data entry interface.



**Figure 6-3. Screenshot of Data Entry Tool Interface.**

The data entry tool allows users to select a site and add data for the site using a web-based form. The following information is collected:

- Data type (e.g. groundwater elevation, groundwater quality, streamflow, or precipitation)
- Parameter for selected data type, units populate based on selection
- Date of measurement
- Measurement value
- Quality flag (i.e., quality assurance description for the measurement such as “Pumping,” “Can’t get tape in casing,” etc. as documented by the data collector)
- Data collector
- Supplemental information based on data type (i.e., reference point elevation, ground surface elevation, etc.)

Data import templates include the same data entry fields and are available for download from the DMS. The Microsoft Excel-based templates contain drop-down options and field validation similar to the data entry interface.

## Data Validation

Quality control helps ensure the integrity of the data added to the DMS. The entities that maintain the monitoring data loaded into the DMS may have performed previous validation of that data; no effort was made to check or correct that previous validation, and it was assumed that all data records provided were



valid. While it is nearly impossible to determine complete accuracy of the data added to the DMS since the DMS cannot detect incorrect measurements due to human error or mechanical failure, it is possible to verify that the data input into the DMS meets some data quality standards. This helps promote user confidence in the data both stored and published for visualization and analysis.

Upon saving the data via the data entry interface or by importing the data using the Microsoft Excel templates, the following data validation checks are performed by the DMS:

- **Duplicate measurements** – The DMS checks for duplicate entries based on the unique combination of site, data type, date, and measurement value.
- **Inaccurate measurements** – The DMS compares data measurements against historical data for the site and flags entries that are outside the historical minimum and maximum values.
- **Incorrect data entry** – Data field entries are checked for correct data type (e.g., number fields do not include text, date fields contain dates, etc.).

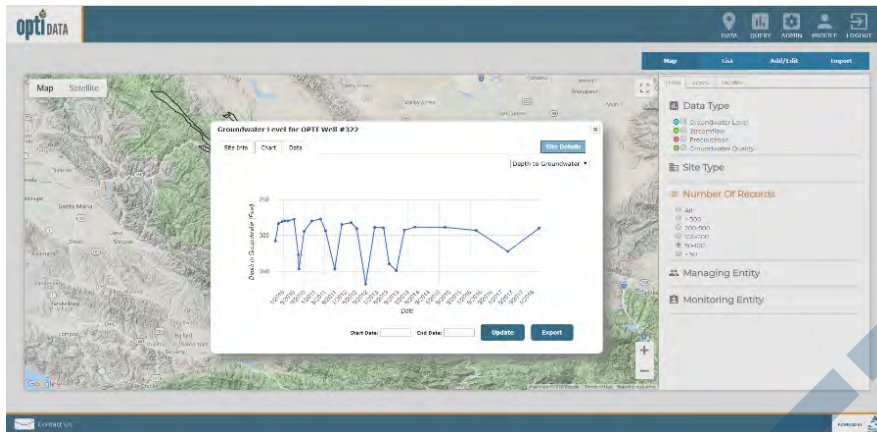
Users are alerted to any validation issues and may either update the data entries or accept the values and continue with the entry/import. Users may access partially completed import validation through the import logs that are saved for each data import. The partially imported datasets are identified in the import log with an incomplete icon under the status field. This allows a second person to also access the imported data and review prior to inclusion in the DMS.

### 6.2.3 Visualization and Analysis

Transparent visualization and analysis tools enable use of the same data and methodologies, allowing stakeholders and neighboring GSAs to use the same data and methods for tracking and analysis. In the DMS, data visualization and analysis are performed in both map and list views, as described below.

#### Map View

The map view displays all sites (i.e., groundwater wells, stream gages, precipitation meters, etc.) in a map-based interface (Figure 6-4). The sites are color-coded based on associated data type and may be filtered by different criteria, such as number of records or monitoring entity. Users may click on a site to view the site detail information and associated data. The monitoring data records are displayed in both chart and table formats. In these views, the user may view different parameters for the data type. The chart and table may be updated to display selected date ranges, and the data may be exported to Microsoft Excel.



**Figure 6-4. DMS Map View.**

### List View

The list view displays all sites (i.e., groundwater wells, stream gages, precipitation meters, etc.) in a tabular interface. The sites are listed according to names and associated entities. The list can be sorted and filtered by different criteria such as number of records or monitoring entity. Similar to the map view, users may click on a site to view the site detail information and associated data. The monitoring data records are displayed in both chart and table formats. In these views, the user may view different parameters for the data type. The chart and table may be updated to display selected date ranges, and the data may be exported to Microsoft Excel.

### Analysis Tools

The toolbox is available in the map view and offers administrative and entity users access to the well tiering tool to support monitoring plan development. The DMS' flexible platform allows for the development and addition of future analysis tools, including contouring, total water budget visualization, and management area tracking.

#### 6.2.4 Query and Reporting

The DMS has the ability to format and export data and analysis at different levels of aggregation, and in different formats, to support local decision making and for submission to various statewide and local programs (i.e., SGMA, CASGEM Program, Groundwater Ambient Monitoring and Assessment (GAMA) Program, etc.).



## Ad Hoc Query

Data in the DMS can be queried and reported using the query tool. The query tool includes the ability to build ad hoc queries using simple options. The data can be queried by the following criteria:

- Monitoring or managing entity
- Site name
- Data type

Once the type of option is selected, the specific criteria may be selected (e.g., groundwater elevation greater than 100 feet). Additionally, users may include time periods as part of the query. The query options can build upon each other to create reports that meet specific needs. Queries may be saved and will display in the saved query drop-down menu for future use.

Query results are displayed in a map format and a list format. In both the map and list views, the user may click on a well to view the associated data. Resulting query data may be exported to Microsoft Excel.

## Standard Reports

The DMS can be configured to support wide-ranging reporting needs through the reports tool. Standard report formats may be generated based on a predetermined format and may be created at the click of a button. These report formats may be configured to match state agency requirements for submittals, including annual reporting of monitoring data that must be submitted electronically on forms provided by the California Department of Water Resources (DWR).

## 6.3 Data Included in the DMS

Because many monitoring programs operate in the Basin at both the local and state/federal levels, a cross-sectional analysis was conducted during GSP development in the Cuyama Basin to document and assess the availability of water-related data in the Basin. Statewide and federal databases that provide data relevant to Basin were also assessed.



The DMS can be configured to include a wide variety of data types and associated parameters. Based on the analysis of existing datasets from the Basin and GSP needs, Table 6-3 lists the data that are identified and currently configured in the DMS.

<b>Data Type</b>	<b>Parameter</b>	<b>Units</b>	<b>Currently Has Data in DMS</b>
Groundwater Elevation	Depth to Groundwater	feet	Yes
	Groundwater Elevation	feet	Yes
Groundwater Quality	Total Dissolved Solids (TDS)	milligrams per liter (mg/L)	Yes
	Nitrate (NO <sub>3</sub> )	mg/L	Yes
	Arsenic	micrograms per liter (µg/L)	Yes
	Benzene	µg/L	--
	Chloride	mg/L	--
	Hexavalent Chromium (Cr(VI))	µg/L	--
	1,2-Dibromo-3-Chloropropane (DBCP)	µg/L	--
	Methyl Tertiary-Butyl Ether (MTBE)	µg/L	--
	Perchlorate	µg/L	--
	Tetrachloroethylene (PCE)	µg/L	--
	Specific Electrical Conductivity (SC)	micromhos per centimeter (µmhos/cm)	--
	1,1,1-Trichloroethane (111-TCA)	µg/L	--
	Trichloroethylene (TCE)	µg/L	--
	1,2,3-Trichloropropane (123-TCP)	µg/L	--
	Chloride (CL)	parts per million (ppm)	--
Electrical Conductivity (EC)	millimhos (mmhos)	--	
Total Dissolved Solids (TDS)	ppm	--	
Streamflow	Streamflow	cubic feet per second (cfs)	Yes
Precipitation	Precipitation	inches	Yes
	Reference Evapotranspiration (ET <sub>o</sub> )	--	--
	Average Air Temperature	--	--
Subsidence	Subsidence	vertical (in millimeters)	Yes

Additional data types and parameters can be added and modified as the DMS grows over time.



The datasets were collected from a variety of sources, as shown in Table 6-4. Each dataset was reviewed for overall quality and consistency prior to consolidation and inclusion in the database. In many cases, there were discrepancies between the ground surface elevation (GSE) of a well from different sources. In these cases of discrepancy, the GSE of the well was updated using the USGS digital elevation model (DEM).

The groundwater wells shown in the DMS are those that included datasets provided by the monitoring data sources for groundwater elevation and quality. These do not include all wells currently used for production, and may include wells historically used for monitoring that do not currently exist. Care was taken to minimize duplicate well information in the DMS. As datasets were consolidated, sites were evaluated based on different criteria (e.g., naming conventions, location, etc.) to determine if the well was included in a different dataset. Data records for the wells were then associated with the same well, where necessary.

After the datasets were consolidated and reviewed for consistency, they were loaded into the DMS. Using the DMS data viewing capabilities, the datasets were then reviewed for completeness and consistency to ensure imports were successful.



**Table 6-4. Sources of Data Included in the Data Management System**

<b>Data Source</b>	<b>Datasets Collected</b>	<b>Date Collected</b>	<b>Activities Performed</b>
US Geological Survey (USGS)	<ul style="list-style-type: none"> <li>• Groundwater Elevation</li> <li>• Streamflow</li> <li>• Precipitation</li> </ul>	5/4/2018	<ul style="list-style-type: none"> <li>• Removed duplicate records</li> <li>• Recalculated GSE based on DEM on select wells</li> </ul>
DWR CASGEM/Water Data Library (WDL)	<ul style="list-style-type: none"> <li>• Groundwater Elevation</li> </ul>	4/18/2018	<ul style="list-style-type: none"> <li>• Removed duplicate records</li> <li>• Recalculated GSE based on DEM on select wells</li> </ul>
San Luis Obispo County	<ul style="list-style-type: none"> <li>• Groundwater Elevation</li> <li>• Groundwater Quality</li> </ul>	4/2/2018	<ul style="list-style-type: none"> <li>• Removed duplicate records</li> <li>• Recalculated GSE based on DEM on select wells</li> </ul>
Santa Barbara County Water Agency	<ul style="list-style-type: none"> <li>• Groundwater Elevation</li> <li>• Precipitation</li> </ul>	3/27/2018	<ul style="list-style-type: none"> <li>• Removed duplicate records</li> <li>• Recalculated GSE based on DEM on select wells</li> </ul>
Ventura County	<ul style="list-style-type: none"> <li>• Groundwater Elevation</li> <li>• Groundwater Quality</li> <li>• Precipitation</li> </ul>	3/8/2018	<ul style="list-style-type: none"> <li>• Removed duplicate records</li> <li>• Recalculated GSE based on DEM on select wells</li> </ul>
DWR Natural Resources Agency	<ul style="list-style-type: none"> <li>• Groundwater Quality</li> </ul>	6/14/2018	<ul style="list-style-type: none"> <li>• Removed duplicate records</li> </ul>
GeoTracker	<ul style="list-style-type: none"> <li>• Groundwater Quality</li> </ul>	6/5/2018	<ul style="list-style-type: none"> <li>• Removed duplicate records</li> </ul>
California Environmental Data Exchange Network (CEDEN)	<ul style="list-style-type: none"> <li>• Groundwater Quality</li> </ul>	8/29/2018	<ul style="list-style-type: none"> <li>• Removed duplicate records</li> </ul>
National Water Quality Monitoring Council	<ul style="list-style-type: none"> <li>• Groundwater Quality</li> </ul>	6/1/2018	<ul style="list-style-type: none"> <li>• Removed duplicate records</li> </ul>
UNAVCO	<ul style="list-style-type: none"> <li>• Ground Surface Elevation</li> </ul>	3/12/2018	<ul style="list-style-type: none"> <li>• None</li> </ul>
Local Data	<ul style="list-style-type: none"> <li>• Groundwater Elevation</li> <li>• Groundwater Quality</li> <li>• Other</li> </ul>	Various	<ul style="list-style-type: none"> <li>• Removed duplicate records</li> <li>• Recalculated GSE based on DEM on select wells</li> </ul>



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**Appendix A**

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Cuyama Basin Data Management System  
Opti Data Public User Guide

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# Cuyama Basin Data Management System



## Public User Guide



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# Opti Public User Guide

Opti is a one-stop-shop for transparent data management and analysis that enables integrated performance tracking to support sustainable water management. This Public User Guide has been developed to assist you with navigation and usage of the Cuyama Basin Data Management System (DMS). Please see the Appendix for specific data types and quality codes configured in this implementation.

The DMS may be accessed at: <http://opti.woodardcurran.com/cuyama>

Please click on Guest Login to access the DMS as a guest user. If you would like to gain additional access to the DMS for data updates and management, please contact: Taylor Blakslee ([tblakslee@hgcpm.com](mailto:tblakslee@hgcpm.com)).

Public usage of the DMS is explained in the following modules:

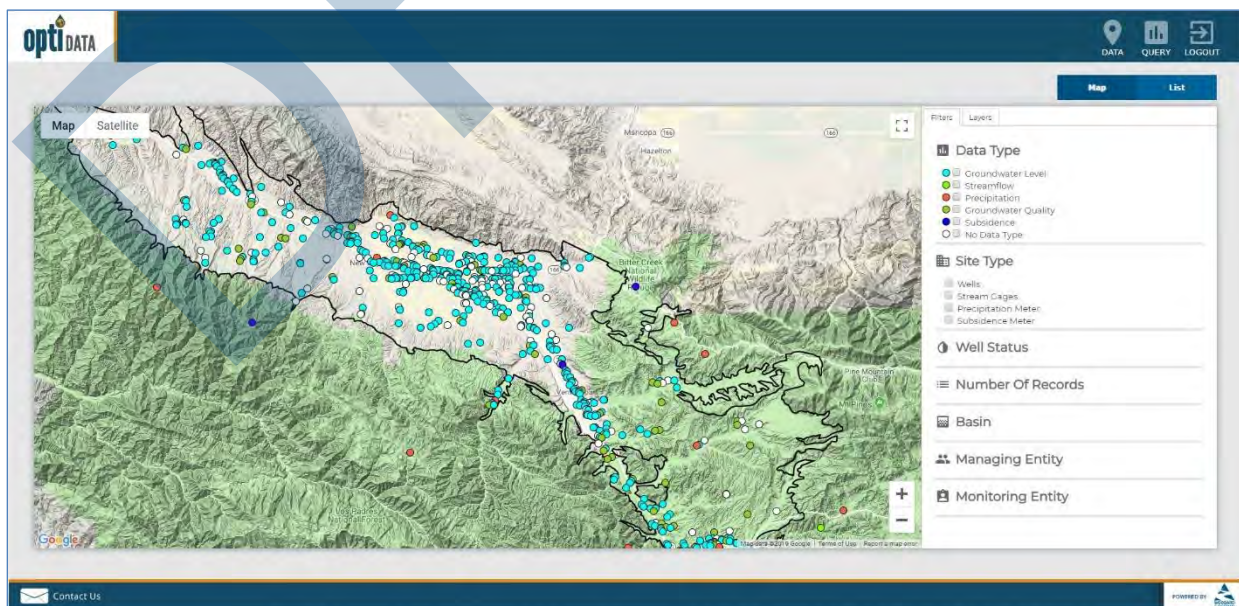
- [Data](#)
- [Query](#)

## Module: Data (Top)

The Data module contains two available submodules that allow you to view water resources data and their associated site information: Map and List. Upon entering the DMS, a welcome message will be displayed. Click Close to continue to the Map.

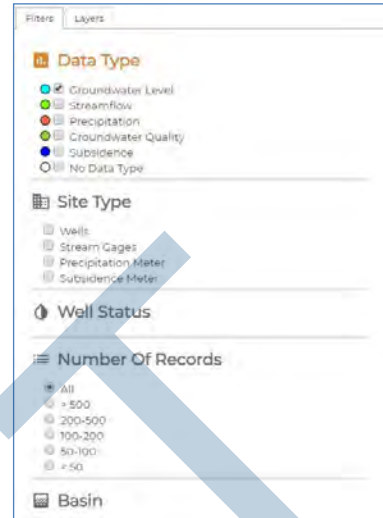
### *Submodule: Map*

The Map submodule displays the sites (wells, stream gages, facilities, etc.) as point locations on the map.



### Feature: Change the Google Map display

- To move the location or extent of the map display, use the “+” and “-” icons in the lower right-hand corner of the map. You may use the pan tool to move the focal location of the display.
- To change the base layer of the map display, select an option from the upper left-hand side of the map display (Map or Satellite).



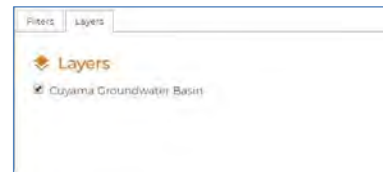
### Feature: Filter the results displayed on the map

- On the Filters tab on the right-hand panel, select the checkboxes for the options for which you would like to filter the results.
- Select sites based on:
  - data type associated with the site,
  - site type,
  - number of data records,
  - entity, or
  - a combination of any filter.

Please note that sites may have more than one data type associated with them, e.g., groundwater level and groundwater quality.

### Feature: Change the layers displayed on the map

- Click on the Layers tab on the right-hand panel.
- Select the layers that you wish to have displayed. Upon selection, the map will be updated to show the selected layers.
- You may click on features on the layer to view information on that feature.



### Feature: View site information on the map

- Click on a site on the map. The site information will be displayed with tabs for Site Info, Chart, and Data.
- To view site detailed information, click on the Details link. The Site Details page will open.
- To view a chart of the data, click on the Chart tab. You may change the parameter by selecting a parameter from the drop-down list in the upper right-hand corner. You may update the chart timeline by selecting the Start Date and End Date and clicking Update. You may export the data to Excel by clicking Export.
- To view a table of the data, click on the Data tab. You may change the parameter by selecting a parameter from the drop-down list in the upper right-hand corner. You may narrow the tabular



list by selecting the Start Date and End Date and clicking Update. You may export the data by clicking Export.

- To select a different data type for the site, click on the data type available under “Data Available” on the Site Info tab.

The screenshot shows the OptiDATA web application interface. At the top, there are navigation links for DATA, QUERY, and LOGOUT. Below the navigation is a 'Map' button and a 'List' button. The main area displays a map with a pop-up window titled 'Groundwater Level for OPTI Well #316'. The pop-up window has tabs for 'Site Info', 'Chart', and 'Data'. The 'Site Info' tab is active, showing the following information:

- Site Name: OPTI Well #316
- Site Type: Well
- Monitoring Entity: Unknown
- Latitude: 34.89771667
- Longitude: -119.542125
- Status: N/A
- Data Available: Groundwater Level, Groundwater Quality

On the right side of the interface, there are filters for Data Type, Site Type, Well Status, Number Of Records, Basin, and Managing Entity. The Data Type filter is set to 'Groundwater Level'.

The screenshot shows the 'Site Details for OPTI Well #316' form. The 'Basic Info' tab is active, showing the following information:

- Site Type: Well (selected), Stream Gage, Precipitation Meter
- Opti Site Name: OPTI Well #316
- Local Site Name: [Empty]
- Additional Name: [Empty]
- Latitude: 34.89771667
- Longitude: -119.542125
- Description: [Empty]



## Submodule: List

The List submodule contains a list of sites in a sortable, tabular format.

Site Name	State Well ID	CASSEM ID	Managing Entity	Monitoring Entity
OPTI Well #1	07N23W15F002S	8639	Cuyama Basin GSA	Unknown
OPTI Well #2	07N23W16R001S	8641	Cuyama Basin GSA	County of Ventura
OPTI Well #3	07N23W20C001S	8642	Cuyama Basin GSA	Unknown
OPTI Well #4	07N23W21B001S	8643	Cuyama Basin GSA	Unknown
OPTI Well #5	07N23W21D001S	8644	Cuyama Basin GSA	Unknown
OPTI Well #6	07N23W23G001S	8645	Cuyama Basin GSA	Unknown
OPTI Well #7	07N24W02K001S	8647	Cuyama Basin GSA	Unknown
OPTI Well #8	07N24W02R001S	8648	Cuyama Basin GSA	Unknown
OPTI Well #9	07N24W11R002S	8649	Cuyama Basin GSA	Unknown
OPTI Well #10	07N24W12G001S	8650	Cuyama Basin GSA	Unknown
OPTI Well #11	07N24W13C002S	8651	Cuyama Basin GSA	Unknown
OPTI Well #12	08N23W17H001S	9738	Cuyama Basin GSA	Unknown
OPTI Well #13	08N23W17K001S	9739	Cuyama Basin GSA	Unknown
OPTI Well #14	08N24W08L001S	9740	Cuyama Basin GSA	Unknown
OPTI Well #15	09N23W30G001S	10871	Cuyama Basin GSA	Unknown
OPTI Well #16	09N23W30M001S	10872	Cuyama Basin GSA	Unknown
OPTI Well #17	09N24W32Q002S	10873	Cuyama Basin GSA	Unknown
OPTI Well #18	11N23W32R001S	12310	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #19	11N26W22A001S	12311	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #20	11N26W26B001S	12312	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #21	10N24W17R001S	14503	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #22	10N24W28L001S	14504	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #23	10N25W14Q001S	14505	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #24	10N25W15Q002S	14506	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #25	10N25W17K001S	14507	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #26	10N25W25H001S	14508	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #27	10N25W21Q001S	14509	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #28	10N25W23E001S	14510	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #29	10N25W25M003S	14511	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #30	10N25W25B001S	14512	Cuyama Basin GSA	California Department of Water Resources
OPTI Well #31	10N25W27G001S	14513	Cuyama Basin GSA	California Department of Water Resources

### Feature: Filter and/or sort sites

- Select data type, site type, number of records, or entity from the drop-down menu at the top of the table to filter sites.
- Click on the table headers to alphabetically or numerically sort the selected column.

### Feature: View site information from list

- Click on the selected site name in the list. The site information will be displayed with tabs for Site Info, Chart, and Data. The Site Details page is available through this dialogue box. The following information may be available:

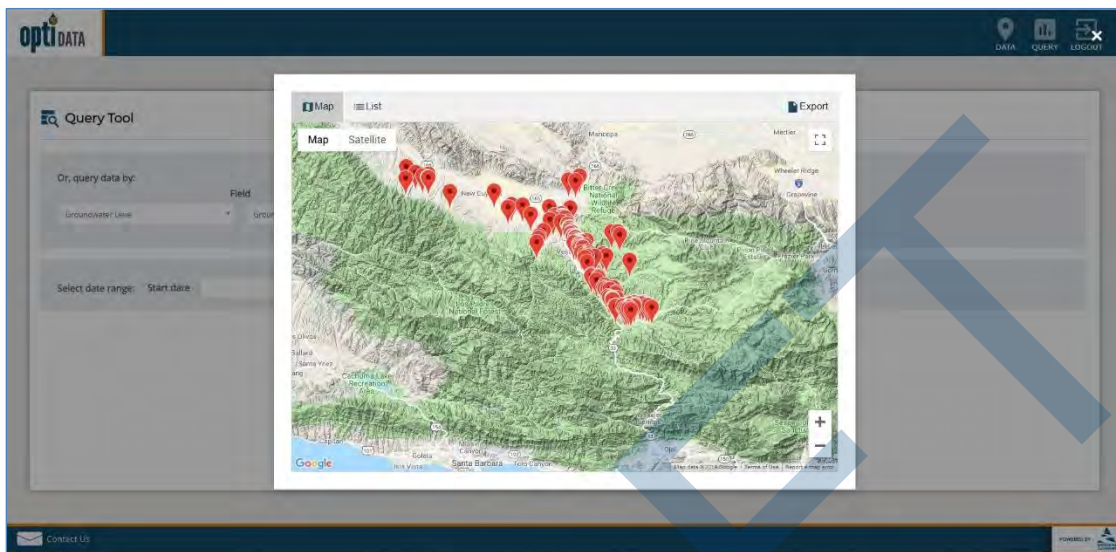


Basic Info	Well Info	Construction Info
Site Type	State Well ID	Total Well Depth
Opti Site Name	MSC (Master State Well Code)	Borehole Depth
Local Site Name	USGS Code	Casing Perforations
Additional Name	CASGEM ID	Top/Bottom Elevation
Latitude/Longitude	Ground Surface Elevation (ft)	Casing Diameter
Description	Reference Point Elevation (ft)	Casing Modifications
County	Reference Point Location	Well Capacity
Managing Entity	Reference Point Description	Well Completion Report Number
Monitoring Entity	Well Use	Comments
Type of Monitoring	Well Status	
Type of Measurement	Well Type	
Monitoring Frequency	Aquifers Monitored	
	Groundwater Basin Name/Code	
	Groundwater Elevation Begin/End Date	
	Groundwater Elevation Measurement Count	
	Water Level Measurement Method	
	Groundwater Quality Begin/End Date	
	Groundwater Quality Measurement Count	
	Comments	

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## Module: Query (Top)

The Query module allows users to search for sites and data using different parameters and values.



### Feature: Create new query

- Click on the Query icon in the menu.
- To create a new query:
  - Select the following options from the drop-down menu under “Or, query data by:”:
    - Entity
    - Site Name
    - Groundwater Level
    - Streamflow
    - Precipitation
    - Groundwater Quality
    - Surface Water Quality
  - If the selected option has associated parameters, select a parameter in the second drop-down menu.
  - Select an Operator. Please note that for text searches, you may use the “Like” option with wildcards (%).
  - To add additional rows to the query, click on the blue “+” button and complete.
  - To remove rows from the query, click on the red “-” button.
- To select data within a particular date range, complete the Start date and End date fields.
- Click Run. A window will open with a map view of the results.
  - Click on the site in the map to view the data for the site.
  - Click on the List tab to view the data in a list format. You may click on a site to view the data.
  - Click on Export to export the data to Excel.
- To clear the query, click the Clear button at the bottom of the page.

## Appendix – Cuyama Basin Specific Implementation Information

### Data Types

The following data types are currently configured in the DMS. Please note that this list may change as more data becomes available.

Data Type	Parameter	Units	Currently Has Data in DMS
Groundwater Elevation	Depth to Groundwater	feet	Yes
	Groundwater Elevation	feet	Yes
Groundwater Quality	Total Dissolved Solids (TDS)	MG/L	Yes
	Nitrate (NO3)	MG/L	Yes
	Arsenic	UG/L	Yes
	Benzene	UG/L	
	Chloride	MG/L	
	Hexavalent Chromium (CR6)	UG/L	
	Dibromochloropropane (DBCP)	UG/L	
	Methyl Tertiary Butyl Ether (MTBE)	UG/L	
	Perchlorate	UG/L	
	Tetrachloroethylene (PCE)	UG/L	
	Specific Electrical Conductivity (SC)	UMHOS/CM	
	1,1,1-Trichloroethane (111-TCA)	UG/L	
	Trichloroethylene (TCE)	UG/L	
	1,2,3-Trichloropropane (123-TCP)	UG/L	
	CL	PPM	
	EC	Mmhos	
	TDS	PPM	
Streamflow	Streamflow	CFS	Yes
Precipitation	Precipitation	inches	Yes
	Reference Evapotranspiration (ETo)		
	Average Air Temperature		
Subsidence	Subsidence	Vertical (mm)	Yes

## Quality Flags for Measurement Data

The following quality flags are currently configured in the DMS. Please note that this list may change as more data becomes available.

ID	Quality Flag	Associated Data Type
1	Caved or deepened	Groundwater Level
2	Pumping	Groundwater Level
3	Nearby pump operating	Groundwater Level
4	Casing leaking or wet	Groundwater Level
5	Pumped recently	Groundwater Level
6	Air or pressure gauge measurement	Groundwater Level
7	Other	Groundwater Level
8	Recharge or surface water effects near well	Groundwater Level
9	Oil or foreign substance in casing	Groundwater Level
10	Acoustical sounder	Groundwater Level
11	Recently flowing	Groundwater Level
12	Flowing	Groundwater Level
13	Nearby flowing	Groundwater Level
14	Nearby recently flowing	Groundwater Level
15	Measurement Discontinued	Groundwater Level
16	Pumping	Groundwater Level
17	Pump house locked	Groundwater Level
18	Tape hung up	Groundwater Level
19	Can't get tape in casing	Groundwater Level
20	Unable to locate well	Groundwater Level
21	Well has been destroyed	Groundwater Level
22	Special/Other	Groundwater Level
23	Casing leaking or wet	Groundwater Level
24	Temporarily inaccessible	Groundwater Level
25	Dry well	Groundwater Level
26	Flowing artesian well	Groundwater Level