



NM.WaterSTAR.org

WaterSTAR: New Mexico Produced Water Data Portal

USER'S GUIDE

PREPARED FOR:

New Mexico Produced Water Research Consortium

New Mexico State University

LAS CRUCES, NM 88003

AND

Ground Water Protection Council

13308 NORTH MACARTHUR BLVD.

OKLAHOMA CITY, OK 73142

BY

Coordinate Solutions, Inc.

268 ST. GEORGE ST.

ST. AUGUSTINE, FL 32084

Table of Contents

WaterSTAR: New Mexico Produced Water Data Portal System Overview	1
NM WaterSTAR	2
Default State and General Rules	3
Page-Level Tools	4
Quarter Township Explorer	4
Quarter Township Explorer List	4
Quarter Township Explorer Filter.....	7
Map	10
Map Tooltip	14
NM Dashboard	17
Default State and General Rules	18
Page-Level Tools	19
Quarter Township Information.....	20
Total Produced Water - Well Count.....	20
Total Produced Water.....	20
Produced Water Quantity Over Time (List)	20
Produced Water Quantity Over Time (Chart).....	21
Water Quality - Well Count.....	22
Water Quality - Sample Count	22
Produced Water Quality Over Time (List)	22
Produced Water Quality Over Time (Chart).....	23
Appendix A: Tier 1 Analyte Limits	24

WaterSTAR: New Mexico Produced Water Data Portal System Overview

The WaterSTAR: New Mexico Produced Water Data Portal system is comprised of two, related web applications: [NM WaterSTAR](#) and [NM Dashboard](#). Together, these applications form an online system that allows visitors to view, download, and interact with produced water quantity and quality data in enhanced websites with a GIS component. The system is expected to be expanded in subsequent project phases to provide different tiers of access depending on user roles that will likely vary from the public at the lowest tier to state regulators/researchers at the highest tier. This initial project phase includes only Tier 1 & 2 Public Access functionality, and all analytical results are averaged over a quarter township area (nine square miles).

Comprehensive, detailed information about the WaterSTAR: New Mexico Produced Water web application is described below in corresponding sections.

Additional Notes:

1. The WaterSTAR system is designed for Chromium web browsers (e.g., Google Chrome, Microsoft Edge)
2. The produced water **quantity** data currently included in the WaterSTAR system is sourced from the New Mexico Oil Conservation Division (OCD).
3. The produced water **quality** data currently included in the WaterSTAR system is sourced from the New Mexico Water and Infrastructure Data System (WAIDS) database or a USGS Produced Water dataset that was included with the WAIDS database.
 - a. **Important to note:** Legacy water quality data includes results with sample date values of NULL and "01/01/1900". The WaterSTAR system includes these records in its averages.
4. The WaterSTAR system surfaces **only quarter townships that have reported produced water and that have analytical results for two or more Salt Water Disposal (SWD) wells**. Disposal wells are used instead of production wells because the goal is to show information about water that is available for reuse.
5. The WaterSTAR system is currently designed to include data for 16 Tier 1 analytes. Map layers and list columns are included for each of these analytes, **but only four of these Tier 1 analytes have a significant number of results for the wells migrated from the WAIDS database: Total Dissolved Solids (TDS), pH, chloride (Cl), and sodium (Na). Filtering for or displaying other analytes may not return results.**
6. There is a key difference between how NM WaterSTAR and Dashboard averages produced water **quality** data: analytes are averaged by quarter township in NM WaterSTAR, while Dashboard averages analytes by quarter township **and month**.

- a. This means an analyte's average in NM WaterSTAR may differ from its corresponding average in Dashboard because the denominator in NM WaterSTAR is number of samples, not number of months.

NM WaterSTAR

The NM WaterSTAR web application has been designed as a single-page format, where data is grouped into the following components:

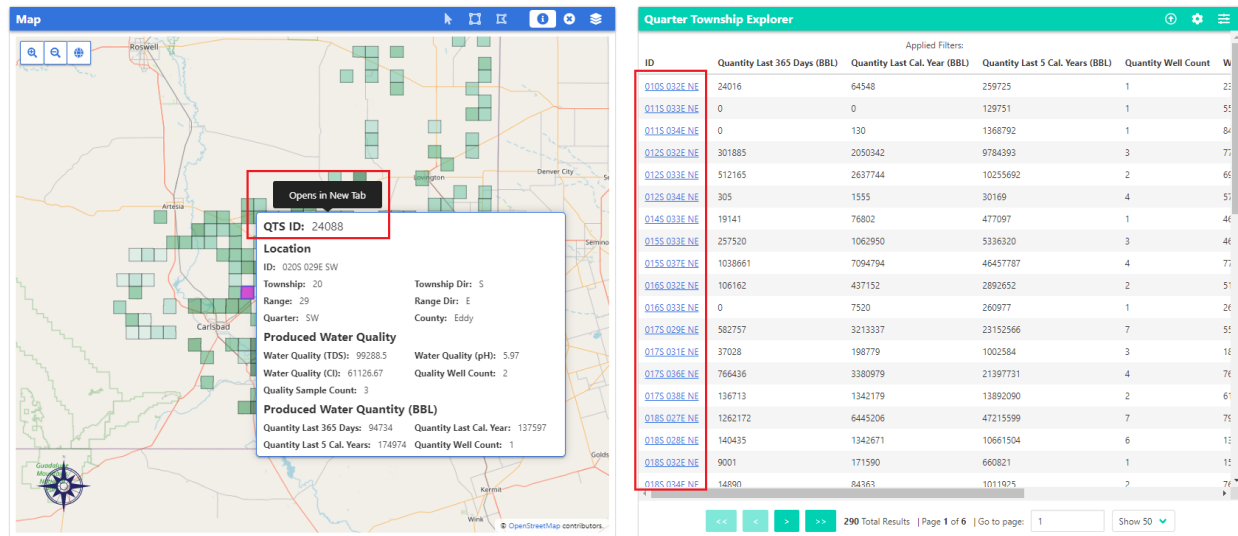
- [Page-Level Tools](#)
- [Quarter Township Explorer](#)
- [Map](#)
 - [Map Tooltip](#)
- [Dashboard](#)

The below screenshot shows where these components appear/are accessed in the web application.

The screenshot shows the NM WaterSTAR web application interface. The top navigation bar includes 'NM WaterSTAR', 'WaterSTAR: NM Produced Water', and 'Public Access'. A 'Reset All Filters' button is located in the top right corner. The main interface is divided into two panels. The left panel, titled 'Map', displays a map of New Mexico with various locations marked. The right panel, titled 'Quarter Township Explorer', displays a table of data. The table has columns for ID, Quantity Last 365 Days (BBL), Quantity Last Cal. Year (BBL), Quantity Last 5 Cal. Years (BBL), Quantity Well Count, and Water Quality (TDS). The table lists 20 rows of data. At the bottom of the table, it shows '290 Total Results | Page 1 of 6 | Go to page: 1 | Show 50'. There are also navigation buttons like 'Previous', 'Next', 'First', and 'Last'.


ID	Quantity Last 365 Days (BBL)	Quantity Last Cal. Year (BBL)	Quantity Last 5 Cal. Years (BBL)	Quantity Well Count	Water Quality (TDS)
0105.033E.NE	32116	64548	259725	1	238635.71
0115.033E.NE	0	0	129751	1	55817.66
0115.034E.NE	130	130	1368792	1	84362
0125.033E.NE	487907	2050342	9784393	3	77854.67
0125.033E.NE	768355	2637744	10255692	2	69732.13
0125.034E.NE	455	1555	30169	4	57138.17
0145.033E.NE	26140	76802	477097	1	46275.01
0155.033E.NE	329550	1062950	5338320	3	48383.32
0155.037E.NE	1489100	7084794	46457787	4	77171.26
0165.033E.NE	140899	437152	3892652	2	51433.25
0165.033E.NE	252	7520	260977	1	260044.25
0175.029E.NE	856676	3213337	23152566	7	55203
0175.031E.NE	50244	186779	1002584	3	189638
0175.036E.NE	1103691	3380979	21397731	4	76057.78
0175.038E.NE	275658	1342179	13892090	2	61000.72
0185.027E.NE	1712234	6445206	47215599	7	79553.88
0185.028E.NE	232575	1342671	10661504	6	132993.09
0185.032E.NE	14397	171590	660821	1	155425.57
0185.034E.NE	21492	84363	1011925	2	76553.75
0185.035E.NE	78159	237488	1337058	1	55412.67
0185.038E.NE	534	19113	329799	1	140380.71
0195.024E.NE	5434	22508	157644	1	6130.07
0195.024E.NE	439565	1605111	5432361	3	14586.88

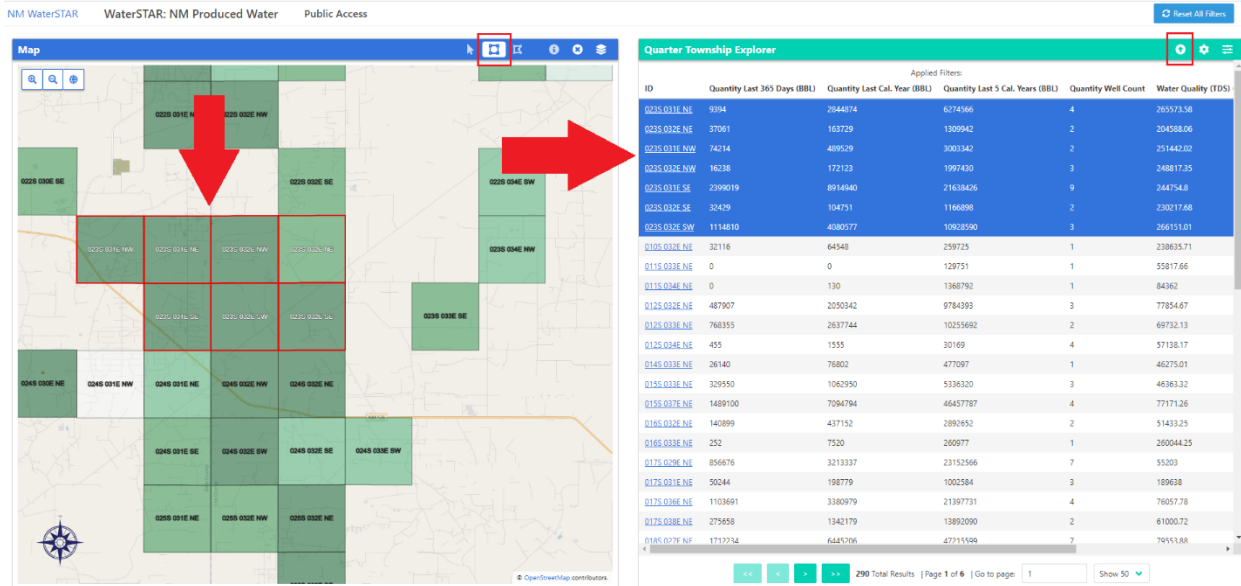
Important to note: Dashboard does not appear as a stand-alone component but is launched in a new tab when a user clicks on a specific ID link from within the [Quarter Township Explorer](#) or [Map Tooltip](#).



Default State and General Rules

- The WaterSTAR system is designed for Chromium web browsers (e.g., Google Chrome, Microsoft Edge)
- The WaterSTAR system surfaces **only quarter townships that have reported produced water and that have analytical results for two or more Salt Water Disposal (SWD) wells**
- Dashboard is only launched when a user clicks on a specific ID link from within the Quarter Township Explorer or Map Tooltip
- NM WaterSTAR is reductive, meaning that the app will default to include all records and reduce the record sets through filter selections
- NM WaterSTAR is *highly* interrelated, i.e.:
 - Filtering records in the Quarter Township Explorer automatically updates the quarter townships displayed in the Map
 - Users can select quarter townships from either the Quarter Township Explorer or the Map
 - Making a selection in the Quarter Township Explorer results in:
 - The records in the Explorer being highlighted in blue
 - The Map centering, zooming to, and highlighting the selected quarter township
 - Selected quarter townships are highlighted with a red border and the label text turns from black to white
 - Making a selection in the Map results in:
 - The corresponding quarter township(s) in the Explorer List being selected and displaying as blue-highlighted
 - Important to note:** Selected quarter townships can be moved to the top of the Explorer List by enabling the Promote Records tool in the Explorer

List ; this tool may be enabled either before or after the records are selected




The screenshot shows the NM WaterSTAR interface. On the left is a map of a region with various township boundaries. A red arrow points from a specific area on the map to the 'List' icon (a square with a plus sign) in the top right corner of the interface. On the right is the 'Quarter Township Explorer' table, which displays a list of townships and their corresponding water quality data. A red arrow points from the 'List' icon to the top of this table.

ID	Quantity Last 365 Days (BBL)	Quantity Last Cal. Year (BBL)	Quantity Last 5 Cal. Years (BBL)	Quantity Well Count	Water Quality (TDS)
0225 031E NE	9194	2644874	6274966	4	265573.58
0225 032E NE	37061	163729	1309942	2	204388.06
0225 031E NW	74214	489579	3003342	2	251442.62
0225 032E NW	16238	172123	1997430	3	248817.35
0225 031E SE	2399019	8916440	21638426	9	244754.8
0225 032E SE	32429	104751	1166098	2	230217.68
0225 032E SW	1114810	4080577	10628590	3	266151.01
0105 032E NE	32116	64548	259725	1	238635.71
0115 032E NE	0	0	129751	1	55817.66
0115 034E NE	0	130	1368792	1	84362
0125 032E NE	487907	2050342	9784393	3	77854.67
0125 033E NE	768355	2637744	10255682	2	68732.13
0125 034E NE	455	1555	30169	4	57136.17
0145 031E NE	26140	76802	477087	1	46275.01
0155 031E NE	329550	1062950	5336320	3	46363.32
0155 032E NE	1489100	7094784	46457787	4	77171.26
0165 032E NE	140899	437152	2892852	2	51433.25
0165 033E NE	252	7520	200977	1	260044.25
0175 029E NE	856676	3213337	23152566	7	55203
0175 031E NE	50244	198779	1002584	3	189638
0175 034E NE	1103691	3380979	21387731	4	76057.78
0175 036E NE	275658	1342179	13892090	2	61000.72
0185 037E NE	1717734	6445706	47715108	7	74513.88

- Analytes are averaged by quarter township in NM WaterSTAR
 - **Important to note:** Legacy water quality data includes results with sample date values of NULL and "01/01/1900". NM WaterSTAR includes these records in its averages

Page-Level Tools

NM WaterSTAR contains the following page-level tool located in the top right of the website:


-  **Reset All Filters:** Clears all filters and resets the application to its default state (refreshing your internet browser simply refreshes the web page)

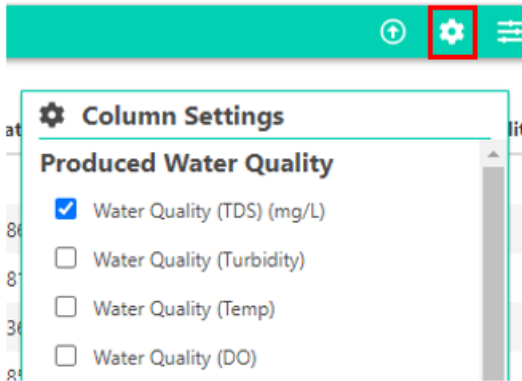
Quarter Township Explorer

There are two menus in the Quarter Township Explorer menu: Quarter Township Settings and Quarter Township Filter.

Quarter Township Explorer List

Quarter Township Explorer: displays the results of the applied filter criteria; NM WaterSTAR defaults to displaying all records.

- Clicking on the *Settings* icon  opens the Columns Settings menu where the user can select which columns to display in the List table
 - To close the Columns Settings menu, click the Settings icon again



- If available, the **Quantity Last 365 Days (BBL)** column displays the total volume of produced water available for reuse for the last 365 days from today's date, including the current date (e.g., if today's date is 06/28/2021, this column will display the total reported quantity from 06/28/2020 through 06/28/2021)
- If available, the **Quantity Last Cal. Year (BBL)** column displays the total volume of produced water available for reuse for the full calendar year (Jan-Dec) prior to the current year (e.g., if today's date is 06/28/2021, this column will display the total reported quantity from the year 2020)
- If available, the **Quantity Last 5 Cal. Years (BBL)** column displays the total volume of produced water available for reuse for the full 5 calendar years (Jan-Dec) prior to the current year (e.g., if today's date is 06/28/2021, this column will display the total reported quantity from the years 2016-2020)
- If available, the **Water Quality...** columns display the *average* of the analyte's concentration for all time
 - **Important to note:** Legacy water quality data includes results with sample date values of NULL and "01/01/1900". NM WaterSTAR includes these records in its averages
- All columns are sortable: first click will sort records in ascending order, second click will sort records in descending order
 - The default sort for the List is ascending order by ID
- At the top of the menu, there is an "Applied Filters:" feature that when filters are applied, displays the applied filters corresponding to the records displayed in the List

Quarter Township Explorer					
Applied Filters: Township = 17, Township Dir = South					
ID	Quantity Last 365 Days (BBL)	Quantity Last Cal. Year (BBL)	Quantity Last 5 Cal. Years (BBL)	Quantity Well Count	Water Quality (TDS) (
017S 029E NE	856676	3213337	23152566	7	55203
017S 031E NE	50244	198779	1002584	3	189638
017S 036E NE	1103691	3380979	21397731	4	76057.78
017S 038F NE	275658	1342179	13892090	2	61000.72


- At the bottom of the menu, the total number of results is displayed, along with the number of pages of results
 - To move forward or back by one page, click the single arrow icons. To move to the last page or back to the first page, click the double-arrow icons

- To move to a specific page, enter the desired page number into the field that says: 'Go to page' or within that field, click the up and down arrows to select a specific page
- The default is to 'Show 50' records per page, the user has the option to reduce this to only show 10, 20, 30, or 40



- Users can select individual or multiple quarter townships for analysis. To make a selection, click on the desired row. The record will be selected and display as blue-highlighted. To add to your selection, click on additional rows.
 - To deselect a record, click on the row again; the record will no longer display as blue-highlighted


Applied Filters: Township = 17, Township Dir = South					
ID	Quantity Last 365 Days (BBL)	Quantity Last Cal. Year (BBL)	Quantity Last 5 Cal. Years (BBL)	Quantity Well Count	Water Quality (TDS) (
017S 029E NE	856676	3213337	23152566	7	55203
017S 031E NE	50244	198779	1002584	3	189638
017S 036E NE	1103691	3380979	21397731	4	76057.78
017S 038E NE	275658	1342179	13892090	2	61000.72
017S 029E NW	832677	3044395	18864933	6	128194.76
017S 031E NW	127660	480566	3013193	2	166787.25
017S 037E NW	0	0	434	1	75301.67
017S 025E SE	0	65	1120	1	125802.97
017S 027E SE	923280	2997634	6054096	1	102993.8
017S 029E SE	0	0	1104	2	101216.4
017S 030E SE	1350465	1267870	35252233	0	65080.33

- Enabling the *Promote Records* tool  moves all *selected* records (records selected within the Explorer or within the Map) to the top of the List view; selected records are displayed as blue-highlighted in the Explorer List

Quarter Township Explorer					
Applied Filters: Township = 17, Township Dir = South					
ID	Quantity Last 365 Days (BBL)	Quantity Last Cal. Year (BBL)	Quantity Last 5 Cal. Years (BBL)	Quantity Well Count	Water Quality (TDS) (
017S 029E NE	856676	3213337	23152566	7	55203
017S 038E NE	275658	1342179	13892090	2	61000.72
017S 031E NW	127660	480566	3013193	2	166787.25
017S 025E SE	0	65	1120	1	125802.97
017S 031E NE	50244	198779	1002584	3	189638
017S 036E NE	1103691	3380979	21397731	4	76057.78
017S 029E NW	832677	3044395	18864933	6	128194.76
017S 037E NW	0	0	434	1	75301.67
017S 027E SE	923280	2997634	6054096	1	102993.8
017S 029E SE	0	0	1104	2	101216.4

Quarter Township Explorer Filter

The Quarter Township Filter displays the available filters to define the conditions of a search.

- Clicking on the *Filter* icon  opens the Filter menu
- The **Quantity Last 365 Days** filter searches the total volume of produced water available for reuse for the last 365 days from today's date, including the current date (e.g., if today's date is 06/28/2021, this filter will search the total reported quantity from 06/28/2020 through 06/28/2021)
- The **Quantity Last Cal. Year** filter searches the total volume of produced water available for reuse for the full calendar year (Jan-Dec) prior to the current year (e.g., if today's date is 06/28/2021, this filter will search the total reported quantity from the year 2020)
- The **Quantity Last 5 Cal. Years** filter searches the total volume of produced water available for reuse for the full 5 calendar years (Jan-Dec) prior to the current year (e.g., if today's date is 06/28/2021, this filter will search the total reported quantity from the years 2016-2020)
- When filtering by **Township** or **Range** values from 1-9, users can search with or without a leading zero (e.g., users can filter for "9" or "09")
- Numeric filters (e.g., **Township**) include arrow icons within the filter to allow users to manually click to a specific number value and will not allow users to click to an invalid selection. Example: if the field does not allow negative or 0 (zero) values, users cannot click down past 1

Township:

=

✓

1




↑

↓



✕

- Numeric or date range filters (e.g., **Water Quality TDS**) include a BETWEEN comparison method that when selected will display 2 fields for the user to enter the desired range. The filter is run inclusively, meaning the start and end values will be included in the results

Water Quality (TDS):





BETWE   

AND

- Drop-down filters (e.g., **Quarter**) allow for either single or multiple selections. For multiple-selection drop-down filters, users can add multiple values to their filter set by clicking back into the field and selecting an additional value
 - To clear a specific value, click the value's 'x' icon

Quarter:


NE  SE   

Select All

NW



SW


- When you filter for multiple values for the same filter, the filters run using an OR clause, not an AND clause. For example, if you run a search using the above **Quarter** selections, the application will return quarter townships in either the NE or the SE quarters
- If multiple filters of different types are applied, the search will run using an AND clause. For example, if you define a search using the following filters, the application will return quarter townships having a Township number equal to 17 AND an average TDS of greater than 5,000 mg/L



Quarter Township Explorer 


This search will produce 21 results.


Location


Township:
=  17 

Township Dir:
Select Multiple... 



Range:
=  



Range Dir:
Select Multiple... 



Quarter:
Select Multiple... 

County:
Select Multiple... 

Produced Water Quality

Water Quality (TDS):
>  5000 

Water Quality (Turbidity):
=  

Water Quality (Temp):
=  

- At the top of the menu there is a “This search will produce <#> results.” feature that as filters are set, will indicate how many records the user's filter criteria will produce if the filters are applied. This allows users to see real-time whether their filter criteria return records and how many

The image shows two screenshots of the 'Quarter Township Explorer' web application. Both screenshots have a teal header bar with the title 'Quarter Township Explorer' and a menu icon. Below the header, a red box highlights a message: 'Loading search results count.' in the top screenshot and 'This search will produce 1 results.' in the bottom screenshot. The main section is titled 'Location' and contains six filter fields arranged in a 2x3 grid:

- Township:** A dropdown menu with an equals sign, a green checkmark, the value '8', and a clear 'x' icon.
- Township Dir:** A dropdown menu with the text 'Select Multiple...' and a green checkmark.
- Range:** A dropdown menu with an equals sign, a green checkmark, and a clear 'x' icon.
- Range Dir:** A dropdown menu with the text 'Select Multiple...' and a green checkmark.
- Quarter:** A dropdown menu with the text 'Select Multiple...' and a green checkmark.
- County:** A dropdown menu with the text 'Select Multiple...' and a green checkmark.

- There are some filters that have additional information for the user that is displayed when the user mouses-over the field's *Information* icon

Produced Water Quality

This screenshot shows the 'Produced Water Quality' section of the application. It features three filter fields:

- Water:** A dropdown menu with an equals sign, a green checkmark, a red box around an information icon (i), and a clear 'x' icon. A green tooltip box is visible above this field containing the text 'Units: mg/L'.
- Water Quality (Turbidity):** A dropdown menu with an equals sign, a green checkmark, and a clear 'x' icon.
- Water Quality (Temp):** A dropdown menu with an equals sign, a green checkmark, and a clear 'x' icon.

- To apply the filter criteria and update the List menu, click the **Apply Filter** button at the bottom of the menu or select Enter on your keyboard
- To clear a specific filter, click the filter's “x” icon

Township:

A close-up of the 'Township' filter field. It shows a dropdown menu with an equals sign, a green checkmark, and a red box around a clear 'x' icon.

- To clear all filters in the Explorer, click the **Clear All Filters** button at the bottom of the menu; alternatively, users can click the **Reset All Filters** button in the top-right of the page

Reset All Filters

Quarter Township Explorer
☰

This search will produce 290 results.

Water Quality (TDS): <input style="width: 100%;" type="text" value="="/>	Water Quality (Turbidity): <input style="width: 100%;" type="text" value="="/>	Water Quality (Temp): <input style="width: 100%;" type="text" value="="/>
Water Quality (DO): <input style="width: 100%;" type="text" value="="/>	Water Quality (pH): <input style="width: 100%;" type="text" value="="/>	Water Quality (TOC): <input style="width: 100%;" type="text" value="="/>
Water Quality (Nitrate): <input style="width: 100%;" type="text" value="="/>	Water Quality (TPH): <input style="width: 100%;" type="text" value="="/>	Water Quality (Gross Alpha): <input style="width: 100%;" type="text" value="="/>
Water Quality (Gross Beta): <input style="width: 100%;" type="text" value="="/>	Water Quality (Thorium): <input style="width: 100%;" type="text" value="="/>	Water Quality (Uranium): <input style="width: 100%;" type="text" value="="/>
Water Quality (Boron): <input style="width: 100%;" type="text" value="="/>	Water Quality (Na): <input style="width: 100%;" type="text" value="="/>	Water Quality (Cl): <input style="width: 100%;" type="text" value="="/>
Water Quality (SAR): <input style="width: 100%;" type="text" value="="/>	Quality Well Count: <input style="width: 100%;" type="text" value="="/>	Quality Sample Count: <input style="width: 100%;" type="text" value="="/>


Produced Water Quantity (BBL)

Quantity Last 365 Days: <input style="width: 100%;" type="text" value="="/>	Quantity Last Cal. Year: <input style="width: 100%;" type="text" value="="/>	Quantity Last 5 Cal. Years: <input style="width: 100%;" type="text" value="="/>
Quantity Well Count <input style="width: 100%;" type="text" value="="/>		

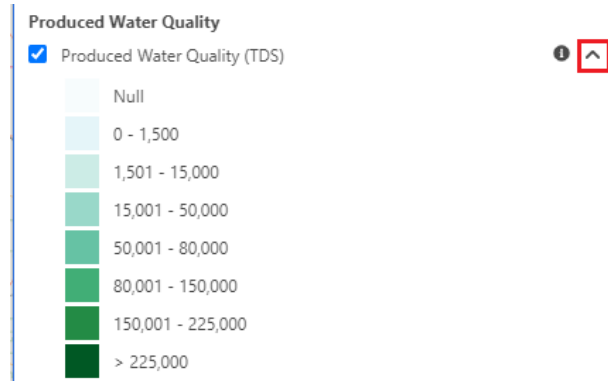
Apply Filter
Clear All Filters

Map


This feature allows users to view and interact with the sampling points in a GIS component. ***To keep water quality data anonymous, the map shows only quarter townships that have analytical results for two or more Salt Water Disposal (SWD) wells.***

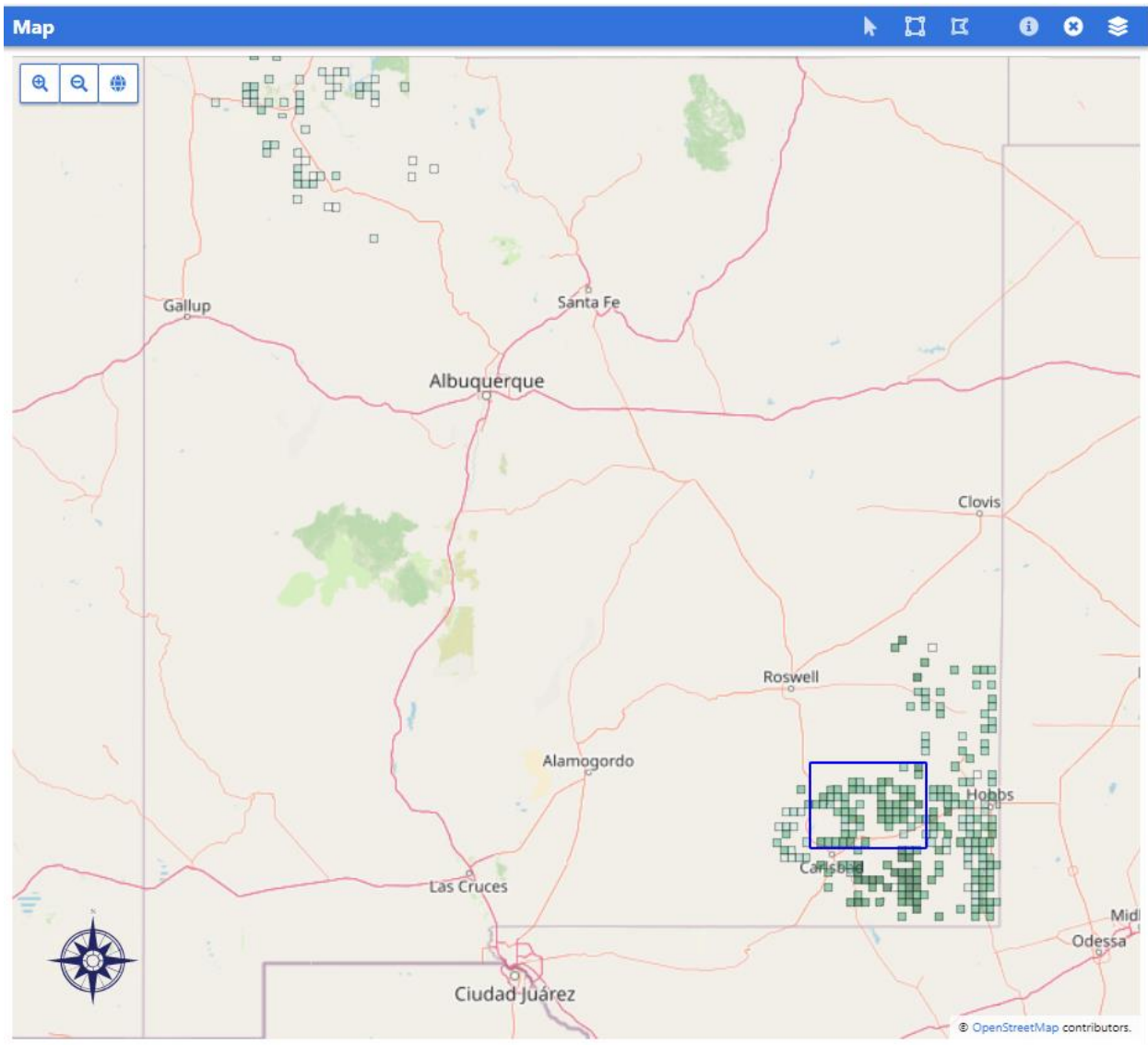
- To view the available Map layers, click the Layers icon 
 - To display/hide a layer, check/uncheck the desired layer
 - **Important to note:** Some layers may take a few seconds to render and others are only visible after you've zoomed into a certain extent

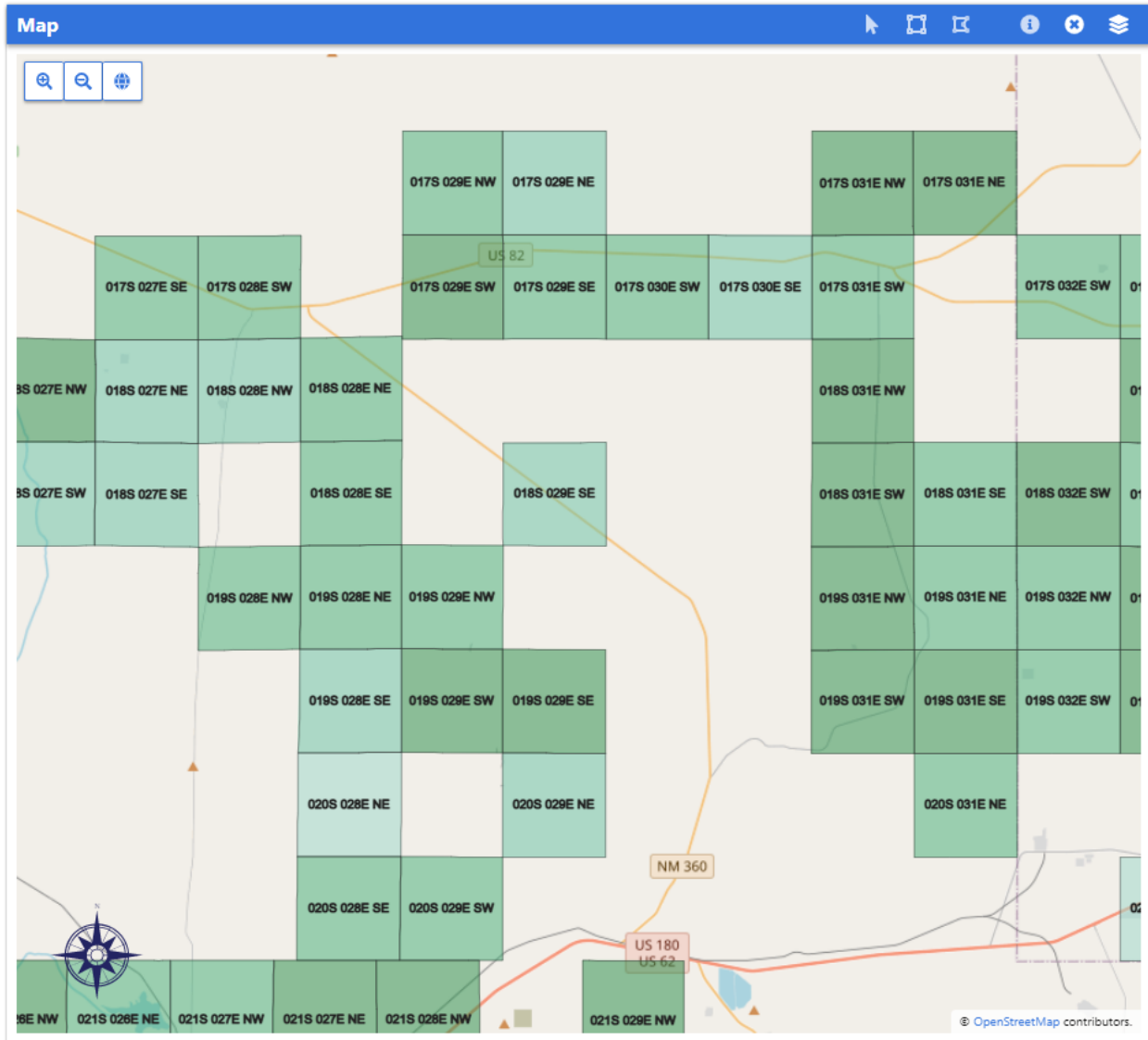
- Layers that are zoom-sensitive are identified in the map legend using a magnifying glass symbol
- To view a layer's legend, click the caret icon next to the applicable layer to expand/collapse its legend




- To close the Layers menu, click the Layers icon again
- Each Tier 1 analyte has its own “Produced Water Quality” layer that displays the produced water quality average for all time. **Important to note:** The legends for the quality layers dynamically change as records are added to the database. Each of the six bins will keep roughly equal numbers of records, but the limits on each bin may change to keep this equal distribution within the bins
- There are four “Produced Water Quantity (BBL)” layers that display the volume of produced water available for reuse. **Important to note:** The legends for the quantity layers dynamically change as records are added to the database. Each of the six bins will keep roughly equal numbers of records, but the limits on each bin may change to keep this equal distribution within the bins
 - **Produced Water Quantity (Last 365 Days):** displays the total volume of produced water available for reuse for the last 365 days from today's date, including the current date (e.g., if today's date is 06/28/2021, this layer will display the total reported quantity from 06/28/2020 through 06/28/2021)
 - **Produced Water Quantity (Last Cal. Year):** displays the total volume of produced water available for reuse for the full calendar year (Jan-Dec) prior to the current year (e.g., if today's date is 06/28/2021, this layer will display the total reported quantity from the year 2020)
 - **Produced Water Quantity (Last 5 Cal. Years):** displays the total volume of produced water available for reuse for the full 5 calendar years (Jan-Dec) prior to the current year (e.g., if today's date is 06/28/2021, this layer will display the total reported quantity from the years 2016-2020)
 - **Produced Water Quantity (All Time):** displays the total volume of produced water available for reuse for all time

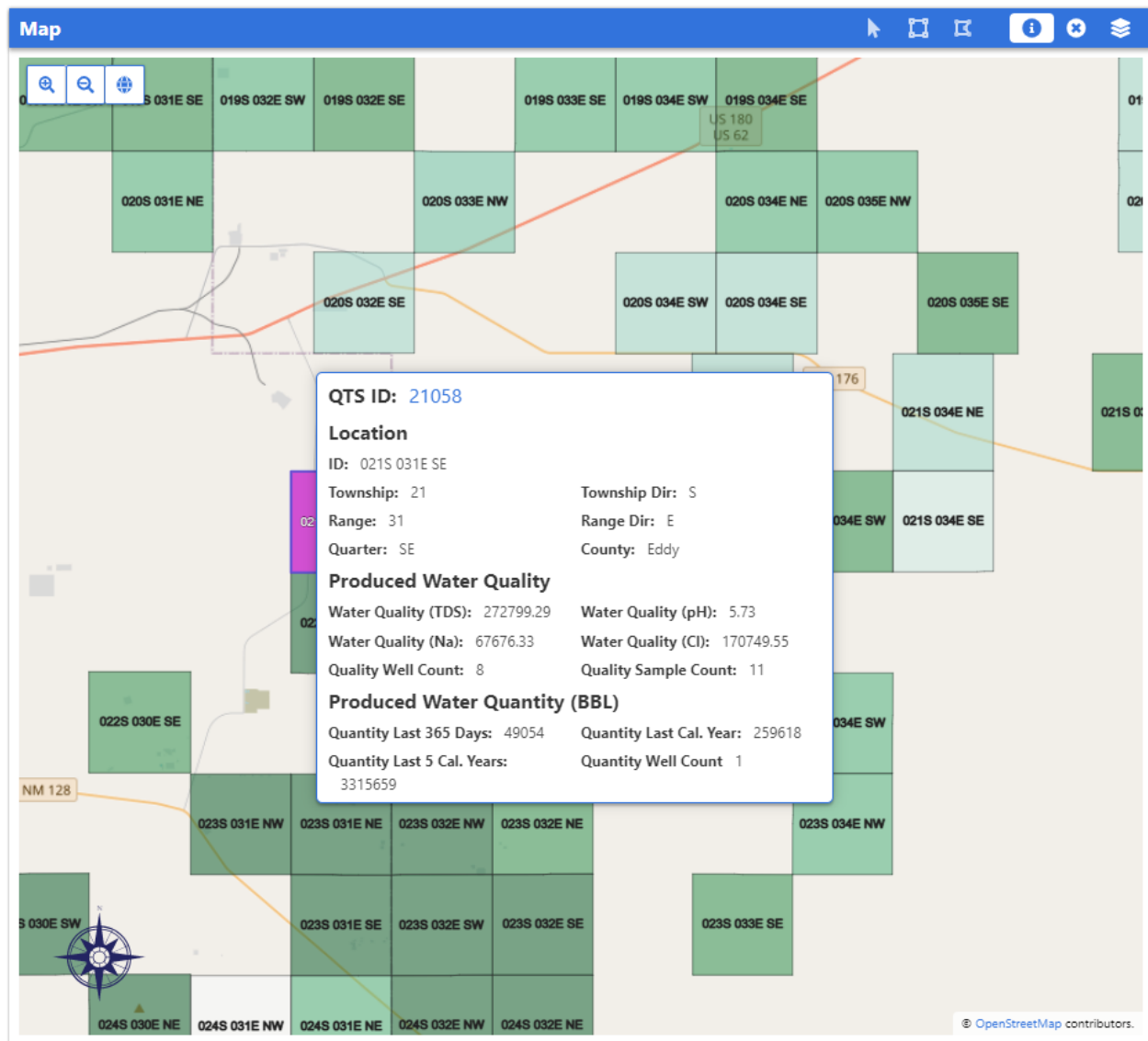
- The selected quarter townships will display as un-selected (i.e., no red border and black text).
- The corresponding records in the Quarter Township Explorer List will update to an un-selected state (i.e., non-highlighted)
- To zoom in to a specific area of the map by drawing a rectangle:
 - If necessary, disable the selection tools 
 - Hold down the <Shift> key and holding the left mouse button down, drag a box around the features you wish to zoom in to
 - Release the mouse button





Map Tooltip

The Map Tooltip is a popup that displays summary details of the selected quarter township. To enable/disable the Tooltip, click the Display / Hide Tooltip icon . If the Tooltip is enabled or if the Select Quarter Townships by Click tool is enabled, then when a user mouses-over a quarter township in the Map the quarter township will display pink-highlighted and the Tooltip will display summary information about the quarter township, along with a link to the quarter township's Dashboard page. The Tooltip popup will automatically close when the user moves their mouse off the quarter township.



- In order to not interfere with sampling point selections, when the “Select Quarter Townships by Rectangle” or “Select Quarter Townships by Polygon” tools are enabled, the Tooltip will **not** display
- The fields displayed in the “Produced Water Quality” and “Produced Water Quantity” sections are dynamic based on the selected quarter township’s data:
 - The “Produced Water Quality” section displays the **average** of the analyte’s concentration for all time. Applicable to all 16 Tier 1 analytes, the analyte will be displayed **only if more than one well in the quarter section has results for that analyte**
 - **Important to note:** Legacy water quality data includes results with sample date values of NULL and “01/01/1900”. NM WaterSTAR includes these records in its averages

QTS ID: 14477

Location
 ID: 018S 028E NE
 Township: 18 Township Dir: S
 Range: 28 Range Dir: E
 Quarter: NE County: Eddy

Produced Water Quality
 Water Quality (TDS): 132993.09 Water Quality (pH): 7
 Water Quality (Na): 40747.06 Water Quality (Cl): 83998.81
 Quality Well Count: 6 Quality Sample Count: 7

Produced Water Quantity (BBL)
 Quantity Last 365 Days: 232575 Quantity Last Cal. Year: 1342671
 Quantity Last 5 Cal. Years: 10661504 Quantity Well Count: 6

- Applicable to the **Quantity Last 365 Days**, **Quantity Last Cal. Year**, and **Quantity Last 5 Cal. Years** fields of the “Produced Water Quantity” section, the fields will be displayed *only if reported data exists for the associated date range (reported volumes >= 0)*

QTS ID: 13752

Location
 ID: 011S 033E NE
 Township: 11 Township Dir: S
 Range: 33 Range Dir: E
 Quarter: NE County: Lea

Produced Water Quality
 Water Quality (TDS): 55817.66 Water Quality (pH): 6.5
 Water Quality (Na): 18852.7 Water Quality (Cl): 34113.32
 Quality Well Count: 5 Quality Sample Count: 5

Produced Water Quantity (BBL)
 Quantity Last 365 Days: 0 Quantity Last Cal. Year: 0
 Quantity Last 5 Cal. Years: 129751 Quantity Well Count: 1

NM Dashboard

The associated NM Dashboard (Dashboard) web application provides aggregate-level information for the quarter township selected in the NM WaterSTAR application and has been designed as a single-page format, where data is grouped into the following components:

- [Page-Level Tools](#)
- [Quarter Township Information](#)
- [Total Produced Water - Well Count](#)
- [Total Produced Water](#)
- [Produced Water Quantity Over Time \(List\)](#)
- [Produced Water Quantity Over Time \(Chart\)](#)
- [Produced Water Quality Over Time \(List\)](#)
- [Produced Water Quality Over Time \(Chart\)](#)

Dashboard is primarily accessed by clicking on a specific ID link from within the NM WaterSTAR Quarter Township Explorer or Map Tooltip.

[NM WaterSTAR](#)
[WaterSTAR: NM Produced Water](#)
[Public Access](#)

Map

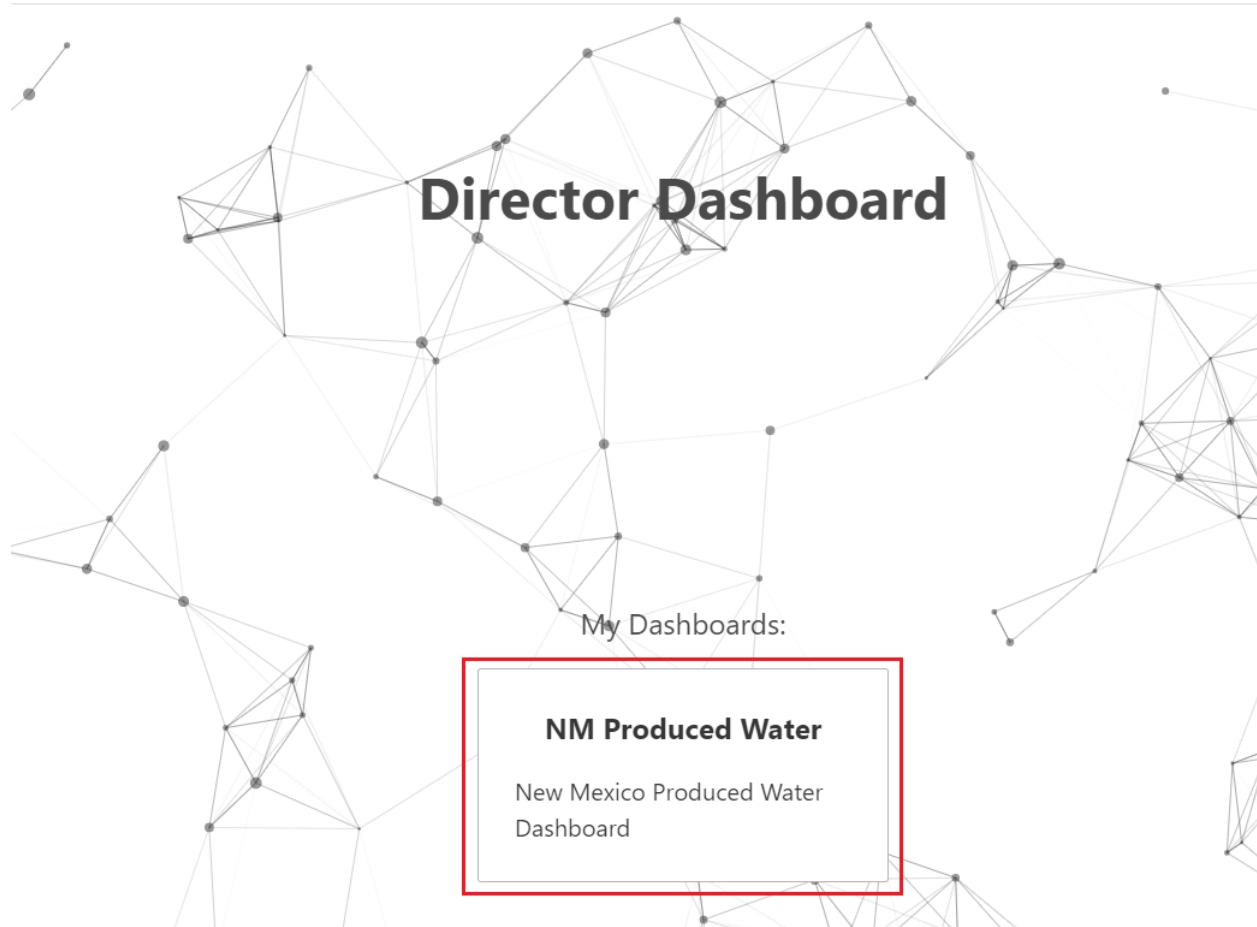
Opens in New Tab

QTS ID: 13650
Location
 ID: 010S 032E NE
 Township: 10 Township Dir: S
 Range: 32 Range Dir: E
 Quarter: NE County: Lea
Produced Water Quality
 Water Quality (TDS): 238635.71 Water Quality (pH): 6.5
 Water Quality (Cl): 142037.14 Quality Well Count: 6
 Quality Sample Count: 7
Produced Water Quantity (BBL)
 Quantity Last 365 Days: 24016 Quantity Last Cal. Year: 64548
 Quantity Last 5 Cal. Years: 259725 Quantity Well Count: 1



Quarter Township Explorer


ID	Quantity Last 365 Days (BBL)
010S 032E NE	24016
011S 033E NE	0
011S 034E NE	0
012S 032E NE	301885
012S 033E NE	512165
012S 034E NE	305
014S 033E NE	19141
015S 033E NE	257520
015S 037E NE	1038661
016S 032E NE	106162
016S 033E NE	0
017S 029E NE	582757
017S 031E NE	37028
017S 036E NE	766436
017S 038E NE	136713
018S 027E NE	1262172
018S 028E NE	140435
018S 032E NE	9001
018S 034E NE	14890

Alternatively, users can launch Dashboard independently from the NM WaterSTAR application by going to “<https://nmpwdashboard.waterstar.org/>” and click the NM Produced Water option.



Default State and General Rules

- The WaterSTAR system is designed for Chromium web browsers (e.g., Google Chrome, Microsoft Edge)
- The WaterSTAR system surfaces ***only quarter townships that have reported produced water and that have analytical results for two or more Salt Water Disposal (SWD) wells***
- Analytes are averaged by quarter township ***and month*** in Dashboard
 - ***Important to note:*** Legacy water quality data includes results with sample date values of NULL and "01/01/1900". Results with NULL sample dates are assigned a "01/01/1900" sample date value when averaging
- All components default to a date range of "All Time", meaning that no date filters are applied
- All components can be expanded to full screen by clicking the Expand to Full Screen icon in the top-right corner of the component 
 - To collapse the component, click on the Collapse icon 

- Users can download both water quantity and quality data by clicking on the Download icon  in the top right corner of the charts and lists. The download file is csv format
 - **Important to note:** Because results are averaged monthly, the downloaded water quality file may have fewer rows than the number of samples indicated in the “Water Quality - Sample Count” component
- In the List components, all columns are sortable: first click will sort records in ascending order, second click will sort records in descending order
- In the Chart components, users can:
 - Hide/show a line by clicking on the applicable line’s **colored box** in the legend
 - When hidden, the box displays as grey-filled; to re-display the line, click the colored box again




- Make a chart line bolder by clicking on the applicable line’s **label** in the legend
 - When bolded, the label displays as underlined; to un-bold the line, click the label again




- Hide/show the legend
- Deselect/Select All items in the legend

Page-Level Tools

Dashboard contains the following page-level tools located in the top left and right of the website, respectively:

-  **Quarter Townships:** Opens a menu that lists all the quarter townships included in the application for the selected date range, with a link to open the quarter township’s details page. To view a quarter township’s details, click the desired quarter township’s **QT Detail** link.
 - The default sort for the list is ascending order by **QT Detail**

NM Produced Water - Quarter Townships		All Time
QT Details		
QT Detail	Location Information	
13850	0105 032E NE	
13752	0115 033E NE	
13763	0116 033E NE	

- 
Date Range filter: Dashboard defaults to a date range of “All Time”, meaning that no date filters are applied. To modify the date range displayed, click the calendar icon; users can select a pre-set date range (e.g., Last Year) or manually select dates from the Start and End Date calendar controls. Once the desired date range has been selected, click “Apply.”

Start Date:

January 2011

Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

End Date:

June 2021

Su	Mo	Tu	We	Th	Fr	Sa
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3

Last Year
(01/01/2020 - 12/31/2020)

Last 2 Years
(01/01/2019 - 12/31/2020)

Last 5 Years
(01/01/2016 - 12/31/2020)

Last 10 Years
(01/01/2011 - 12/31/2020)

Year to Date
(01/01/2021 - 06/11/2021)

All Time

This Quarter
(04/01/2021 - 06/11/2021)

Last Quarter
(01/01/2021 - 03/31/2021)

Last 30 Days
(05/12/2021 - 06/11/2021)

Last 90 Days
(03/13/2021 - 06/11/2021)

Last 365 Days
(06/11/2020 - 06/11/2021)

Apply

Quarter Township Information

Component displays summary identifying information about the selected quarter township.

Total Produced Water - Well Count

Component displays the total number of SWD wells with reported produced water in the selected quarter township for the selected date range.

Total Produced Water

Component displays the total volume of produced water available for reuse for the selected quarter township for the selected date range.

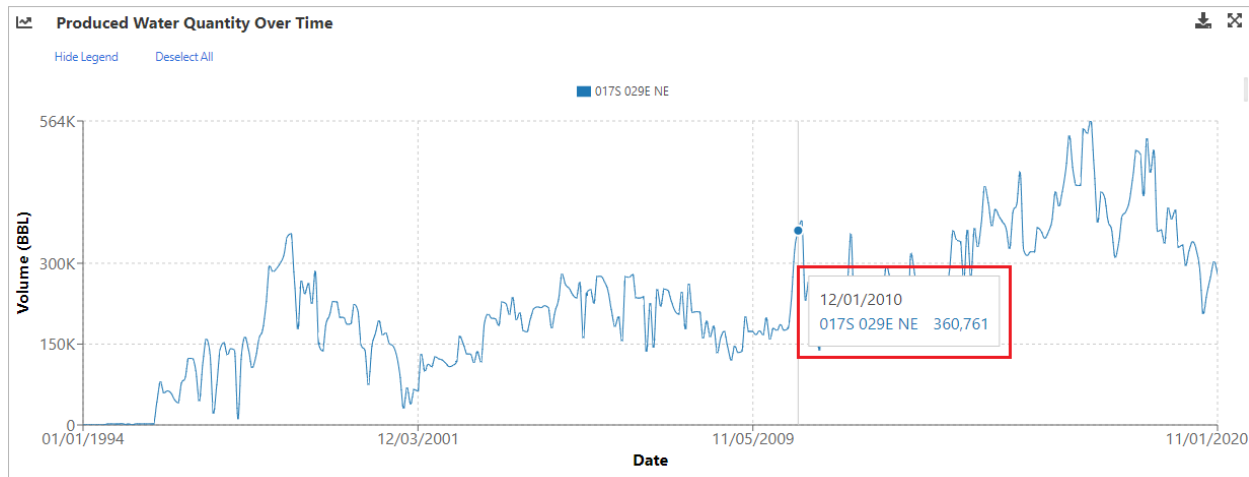
Produced Water Quantity Over Time (List)

Component displays the produced water quantities for the selected quarter township **summed by month** for the selected date range. The default sort for the list is descending order by **Date**.

Produced Water Quantity Over Time			Download	Close
Quarter Township	Date	Volume (BBL)		
017S 029E NE	2020/11/01	280,489		
017S 029E NE	2020/10/01	302,268		
017S 029E NE	2020/09/01	273,919		
017S 029E NE	2020/08/01	243,228		
017S 029E NE	2020/07/01	207,026		
017S 029E NE	2020/06/01	286,904		
017S 029E NE	2020/05/01	325,199		
017S 029E NE	2020/04/01	339,905		
017S 029E NE	2020/03/01	323,900		
017S 029E NE	2020/02/01	296,998		
017S 029E NE	2020/01/01	333,501		

Produced Water Quantity Over Time (Chart)

Component displays the same data as the Produced Water Quantity Over Time list, but in graphical format. Specific report periods and volumes are displayed in a popup when the user mouses over the line.



Water Quality - Well Count

Component displays the total number of SWD wells with reported sample results in the selected quarter township for the selected date range.

Water Quality - Sample Count

Component displays the total number of sample results for the selected quarter township for the selected date range.

Produced Water Quality Over Time (List)

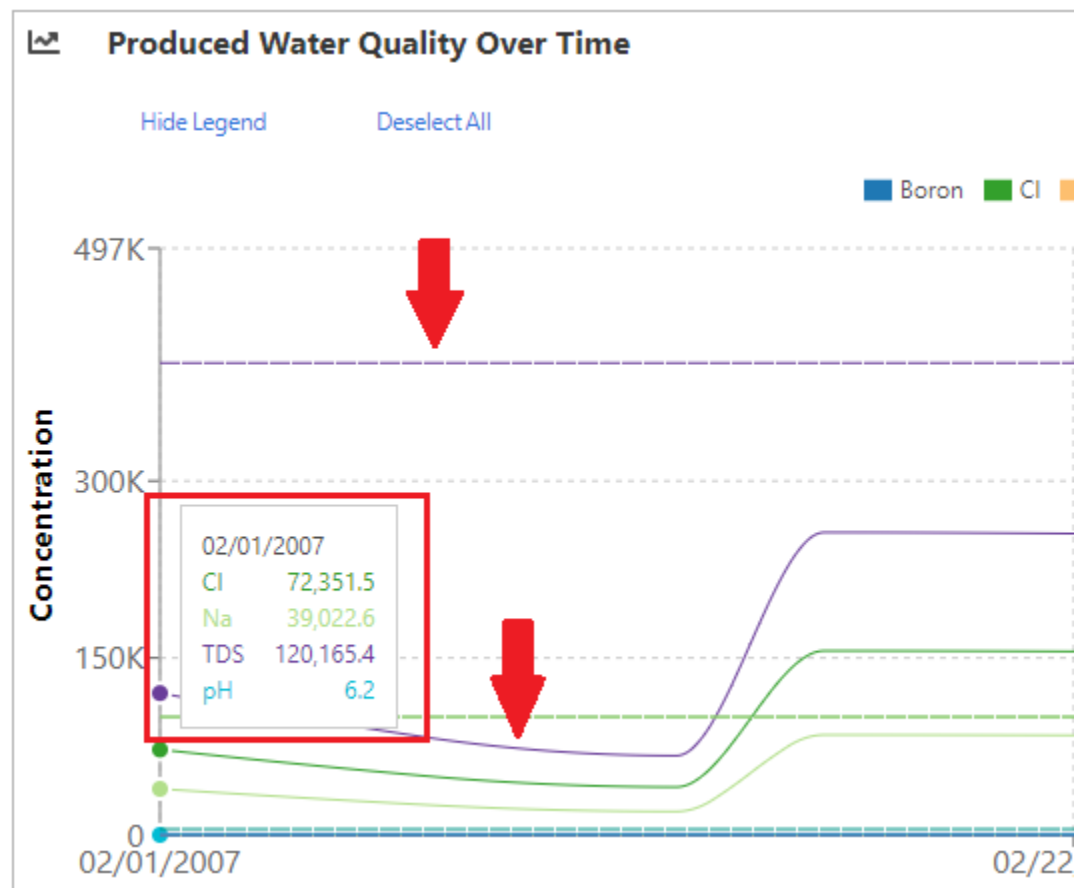
Component displays the produced water sample results for the 16 Tier 1 analytes for the selected quarter township **averaged by month** for the selected date range. The default sort for the list is descending order by **Date**.

Important to note: Legacy water quality data includes results with sample date values of NULL and "01/01/1900". Results with NULL sample dates are assigned a "01/01/1900" sample date value when averaging

Produced Water Quality Over Time																	
Quarter Township	Date	TDS	Turbidity	Temperature	DO	pH	TOC	Nitrates	TPH	Gross Alpha	Gross Beta	Thorium	Uranium	Boron	Na	Cl	SAR
0155 037E NE	1959/10/01	70,780				6.8										39,900	
0155 037E NE	1959/03/01	73,133.33				6.77										41,800	
0155 037E NE	1956/07/01	73,657.67				7.17										42,464	
0155 037E NE	1954/11/01	65,129				7										38,140	
0155 037E NE	1954/06/01	64,567				8										36,720	
0155 037E NE	1954/05/01	59,909														35,020	
0155 037E NE	1954/01/01	76,885				8.2										44,325	
0155 037E NE	1953/11/01	77,446				7.2										46,400	
0155 037E NE	1953/09/01	85,849				6.4										51,280	
0155 037E NE	1953/08/01	126,157				8										76,155	
0155 037E NE	1953/06/01	114,432.5				7.35										67,240	

Produced Water Quality Over Time (Chart)

Component displays the same data as the Produced Water Quality Over Time list, but in graphical format. A line (or a point if there is only one result) is plotted for each analyte that has data. Additionally, each plotted analyte includes an associated limit line (see [Appendix A](#) below for the limits for each Tier 1 analyte), formatted as a dashed-line in the same color as the corresponding analyte. Specific sample dates and results averages are displayed in a popup when the user mouses over the line.



Appendix A: Tier 1 Analyte Limits

Analyte	Limit
TDS	400,000
Turbidity	1,000
Temp	100
SAR	100
Cl	100,000
Na	100,000
Boron	100
Uranium	100
Thorium	5
Gross Beta	4
Gross Alpha	15
TPH	5,000
Nitrate	100
TOC	1,000
pH	7
DO	30