

TCEQ Water Well Report Viewer User Guide

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What is the TCEQ Water Well Report Viewer?

Before this viewer was created, over 800,000 water well reports were stored in paper format at TCEQ Central Records. The storage and general handling of this information was costly in terms of labor, physical space, and time. In addition, the water well data could not be readily accessed or quickly analyzed by end users. Because these records are vital to TCEQ and other agencies, TCEQ also needed to provide adequate off-site backup of the records which is currently not being done today.

In order to solve the above problems, TCEQ implemented an electronic automation solution to convert the paper water well records into an electronic format and subsequently warehouse these records into existing and new databases. TCEQ also created a user interface with necessary functionalities that allows users to quickly retrieve, view and analyze water well data.

The TCEQ Water Well Report Viewer is the web user interface we developed. It allows users to geographically locate and view PDF (Portable Document Format) copies of scanned Water Well reports at TCEQ. In this web service application, users access the water well records through a map grid layer overlaid on the state of Texas layer. When users click on the cell of interest, the application will display a list of the water well records within their selected area. Each record will have a hyperlink to its corresponding report in PDF.

Getting Started

Computer and Internet Browser Settings:

The following computer and Internet browser settings are recommended and approved for proper interface display and optimum viewer performance and functionality:

1) Computer Settings

Operating System – Microsoft Windows 2000/XP

2) Internet Browser Settings

a. Acceptable Internet Browsers

- i. Internet Explorer 6.0 and 7.0
- ii. Firefox 2.0 and 3.0

b. Browser Text Size – The text size should be set to one of the following size options:

- i. Go to **View** menu -> Select **Text Size**
- ii. Select *Medium, Smaller or Smallest*

c. Internet Settings- You *may* need the following for your Internet content settings:

- i. Enable Pop-ups if necessary

A yellow bar will be displaying just below the Menu Bar if the pop-ups are blocked in your Internet browser. Right-click on the yellow bar to unblock the pop-ups as prompted.

- ii. Clear Cache and cookies off your browser if necessary.

You don't need the following settings if this is the first time you are using the TCEQ Water Well Report Viewer. The only times you need them are: 1) when the browser caches all the old interface information and you cannot see the updates that the developer had made to the Viewer; and 2) you want to reset the application to its initial status.

For example, suppose you selected “Don't show disclaimer again” when you first accessed the application; if you want the disclaimer to pop up the next time you open the application interface, you need to

clear the cookie and close all opening browser windows. After this, you can open the application in a new Internet browser.

The following instructions describe how to clear Cache in IE and Firefox.

- How to clear Cache in Internet Explorer 6.0 & 7.0:

- 1) Go to **Tools** ->Select **Internet Options...** select the **Delete** button in the **Browsing history** section.
- 2) Click the “**Delete files**” and “**Delete cookies**” buttons.

- How to clear Cache in Firefox:

- 1) Go to **Tools** ->**Clear Private Data...**
- 2) Make sure the following three items, (Cache, **Cookies** and **Offline Website Data**) are checked. Then click the **Clear Private Data Now** button (see *Figure 1*).

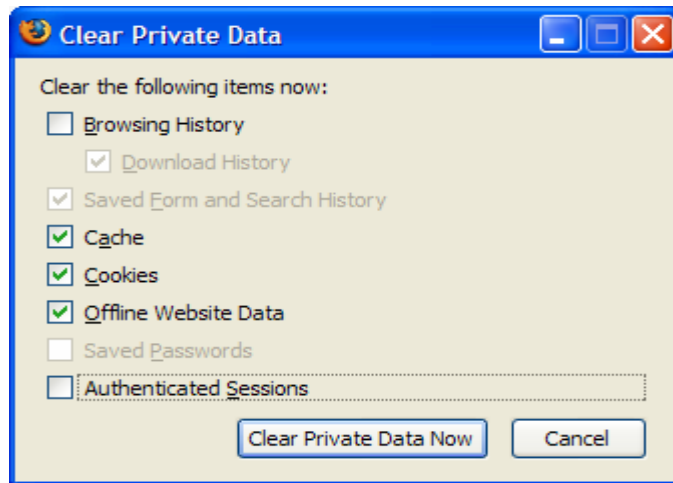


Figure 1

Disclaimer:

A disclaimer will show up when you open the application for the first time in a browser (*Figure 2*). Click the “Close” button to close the disclaimer. Check the box “Don’t show me this again” if you do not want this prompt to show up the next time you visit. If the cookies of the application have been cleared, you will see this prompt again. Please refer to the “Getting started” section for more details.

The disclaimer can also be accessed from a link in the Table of Contents (TOC).

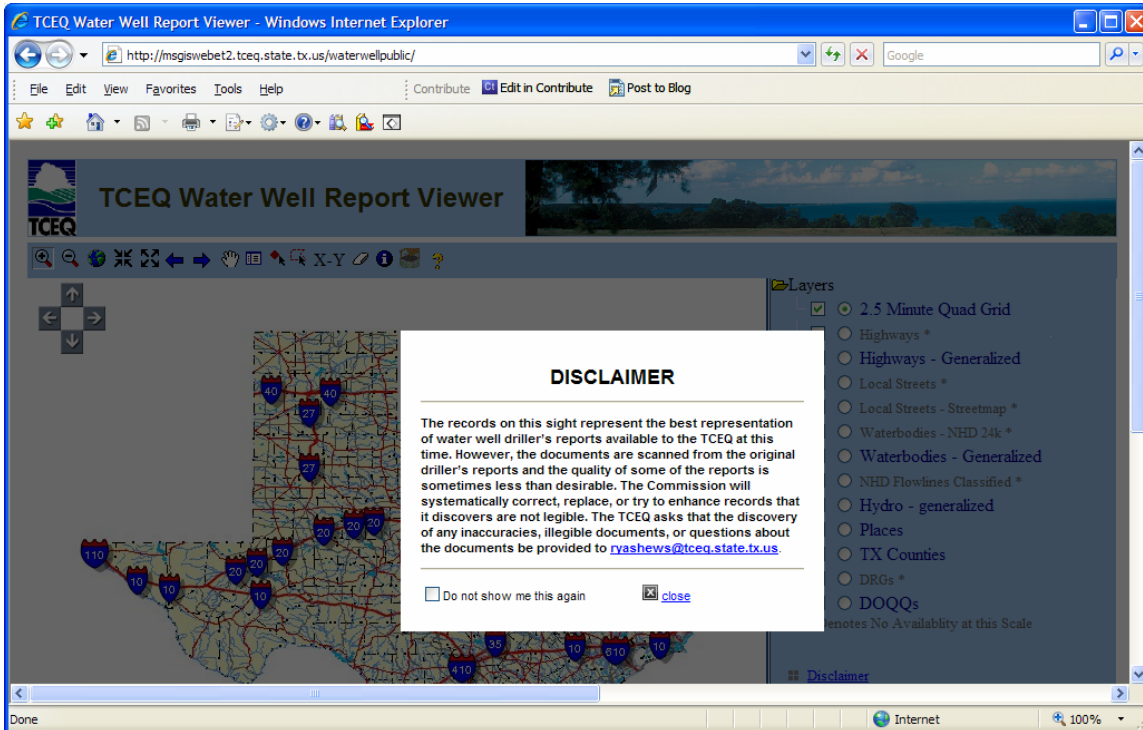




Figure 2

A few steps/methods to help you locate a water well:

- 1) Use either the navigation tools OR search map functions described below to locate the area of your interest.
 - Navigation tools
 Select the  Zoom-In tool first, then *click-and-drag* a box over the area in which you are interested. As you zoom in, you will notice that additional map layers such as grids, cities, counties, and roads appear on the screen. These are reference layers that will help guide you to the appropriate area. Note that you may need to zoom in several times to access individual grids on the map. You may also need to pan the map to see your area of interest.
 See “[What navigation tools are available?](#)” for more details on how to use the navigation tools.
 - Search map functions
 You can directly zoom in on the map to the desired area by using the Search map by city, address or Latitude-Longitude function at the bottom of the interface. See “[What other functions are available?](#)” for more details on how to use these functions.

2) After you zoom in the map to your desired area by using one of the methods mentioned above in 1), use either the [Get Water Well Reports Tool](#) OR [search well functions](#) described below to get a list of water well records.

-  [Get Water Well Reports Tool](#)
Before using this tool, make sure that the rounded "radio button" next to the **2.5 Minute Quad Grid** map layer is checked (it is checked in default). To use this tool, click the **Get Water Well Reports Tool** from the toolbar menu on the top, then single click on the map of interest. The list of water well records will appear in a table in a separate window. The water well record includes the grid number, well county, track number (WWD ID), and other relevant information.
- [Search well functions](#)
You can also display the list of the water well reports by specifying either grid number, county name, or the combination of both in the spaces provided at the bottom of the interface.
For instance, you may want to find all reports of the water wells within the grid number of 19-60-2. You can type in the grid number 19, 60 and 2 in the appropriate form, check the box beside it and click the "Find Well" button. See "[What other functions are available?](#)" for more details on how to use these functions.

Please note that the maximum number of water well records displayed in a search result is programmatically limited to 300. That means the total records displayed in the table of *Figure 5* will not exceed 300. You will get an alert if more records than this limit have been found. You can zoom in the map further or add other search criteria to do the search again if this happens.

3) Each record has a unique WWD_ID field. The Grid Number in the record is hyperlinked to the water well report. Click on the hyperlink to open the PDF report.

What layers does the viewer display in the Table of Contents (TOC)?

Visible when the map is in full extent:

- Highways – Generalized
- Places
- Texas Counties
- DOQQs (available but not visible by default)

Visible when the map is zoomed in:

- 2.5 Minute Quad Grid
- 7.5 Minute Quad Grid
- Highways
- Local Streets
- Local Streets – Streetmap
- Lakes, Reservoirs
- Lakes, Reservoirs – Generalized
- Rivers, Creeks
- Rivers, Creeks - Generalized
- DRGs

What navigation tools are available?

Most navigation tools display “Help” tips you move the cursor on them (see *Figure 3*). You can disable these help pop-ups by unchecking the “Show Help on Tools” check box in the TOC area (see *Figure 4*). The help tips are enabled by default.

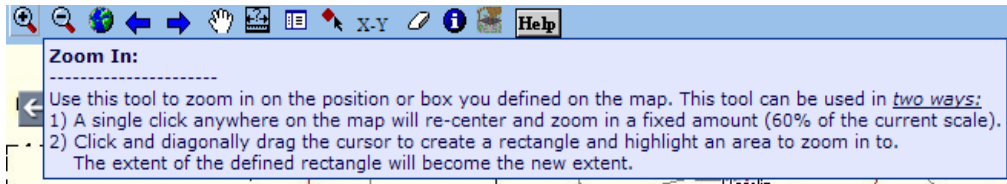


Figure 3

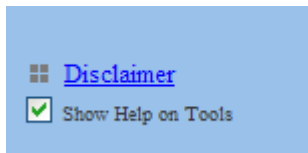


Figure 4

Most important tools:



Get Water Well Reports

This tool is the most important one for this application. It can retrieve the list of water well records from the database and provide links to the actual water well reports (see *Figure 5*).

No	Grid Num	County	WWD ID	Report Box Type
1	19-61-3	WISE	986574	Reports and Standard Size Maps
2	19-61-6	WISE	986578	Reports and Standard Size Maps
3	19-61-9	WISE	986589	Reports and Standard Size Maps
4	19-62-1	WISE	986594	Reports and Standard Size Maps

Figure 5

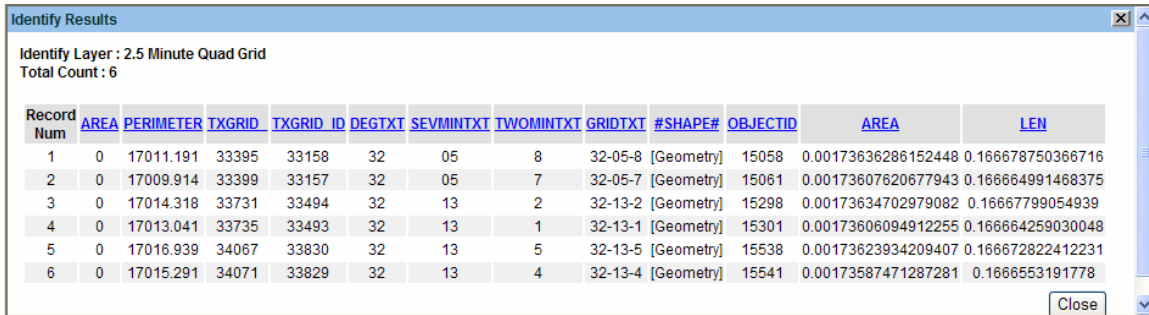
Please refer to the “Getting Started” section to learn how to use this tool.

Trouble Shooting: The viewer may lock up (and display hour glasses) if the user tries to do a zoom with the “Get Water Well Reports” tool active. Hit the “Esc”

key to unlock the cursor. It may be necessary to close and restart the application if the application locks up completely.

Identify features

This tool is used to get the list of feature attributes from the active layer. When you single-click the map, the “Identify Results” will pop up in a separate window (see *Figure 6*).



Record Num	AREA	PERIMETER	TXGRID	TXGRID_ID	DEGTXT	SEVMINTXT	TWOMINTXT	GRIDTXT	#SHAPE#	OBJECTID	AREA	LEN
1	0	17011.191	33395	33158	32	05	8	32-05-8	[Geometry]	15058	0.00173636286152448	0.166678750366716
2	0	17009.914	33399	33157	32	05	7	32-05-7	[Geometry]	15061	0.00173607620677943	0.166664991468375
3	0	17014.318	33731	33494	32	13	2	32-13-2	[Geometry]	15298	0.00173634702979082	0.16667799054939
4	0	17013.041	33735	33493	32	13	1	32-13-1	[Geometry]	15301	0.00173606094912255	0.166664259030048
5	0	17016.939	34067	33830	32	13	5	32-13-5	[Geometry]	15538	0.00173623934209407	0.166672822412231
6	0	17015.291	34071	33829	32	13	4	32-13-4	[Geometry]	15541	0.00173587471287281	0.1666653191778

Figure 6

Note: The “identify” tool can be used on any map layer visible in the map TOC frame. To use this tool, however, you must first click the radio button of the layer and verify that the “identify” tool is selected before clicking on a map feature.

Trouble Shooting: The viewer may lock up (and display hour glasses) if the user tries to do a zoom with the identify tool active. Hit the “Esc” key to unlock the cursor. It may be necessary to close and restart the application if the application locks up completely.

User guide

This icon links to a user guide for the TCEQ Water Well Report application.

Map navigation tools:

Pan Tools

Four pan tools (*Figure 7*) on the upper left of the main map allow the user to pan the map in four directions – north, south, east and west.

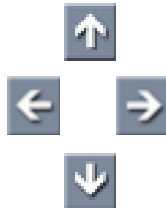


Figure 7

Zoom in

This tool allows you to zoom in on the map to view more detail for a selected area. The tool can be used in two ways: **1)** single click anywhere on the map will re-center and zoom in a fixed amount (60% of the current scale); and **2)** click and diagonally drag the cursor to create a rectangle and highlight an area on the map. The extent of the defined rectangle will determine the new extent.

Zoom out

This tool has the opposite effect of the Zoom In tool and can also be used in two ways: **1)** single click anywhere on the map will re-center and zoom out a fixed amount (140% of the current scale); and **2)** click and diagonally drag the cursor to create a rectangle and highlight an area on the map. The extent of the defined rectangle will become the new extent.

Full extent

This tool allows you to reset the map to the full extent of the state of Texas by clicking once on the button. This is the extent to which the application initially opens.

Pan

Allows you to pan over the data in your map by dragging the display in any direction with the mouse. To use this tool, move the cursor to any desired, hold down the left mouse button, and drag the display in any direction.

Legend - Toggles between Layer list and Legend

This is a toggle tool. Clicking once on the button will hide the layer list and display a map legend where the layer list was. Another click will turn the legend off and open the layer list again.

Measure Tool

When this tool is activated, the button will be outlined in red and indented. To start, press down and hold the left mouse button as you drag to the selected end point. To stop, just let go of the left mouse button. As you drag the measure tool, a line is drawn the distance your cursor moves. At the same time, the values in the results box will adjust to the distance your cursor has moved in both miles and feet. Once you have released the left mouse button at your selected end point, the results box will show the total number of miles and feet between your start and end points. A line will also be drawn between your start and end points. You may either use the “Clear Selection” button or select another start and ending point for

your measurement to clear your initial line from your map frame. Selecting any one of the navigation tools on the toolbar (not including the following two: X-Y and Help) will also automatically clear the line you previously drew.

Clear Selections:

Click once to clear selections or reset the map. This tool is mainly used to clear the selections previously generated by the Digitize Points tool.

Other GIS Map Tools:

The following are GIS map tools. You might not need them when you try to view a water well report.

Digitize Points:

This tool is used to digitize points on the map. It will trace the x/y coordinates of the features from the map locations. Select the tool by clicking the button once, and then click on geographic features or places of interest. The application will place a red dot for each of the points you selected. You can then get the list of Latitude-Longitude coordinates for the digitized features by clicking on the X-Y (Show Coordinates) button. When the tool is selected and active, the tool button will have a red box around it.

X-Y Show Coordinates:

This tool is only available after using the *Digitize Points* or *Digitize* tool. It allows you to display a list of X/Y coordinates for all the places you digitized using the Digitize Points tool and displays them in a separate Web browser window.

What Do "Visible" and "Active" Mean?

The **Layers** folder contains a list of all the available map layers which may be displayed within the Viewer's map frame (see *Figure 8*).

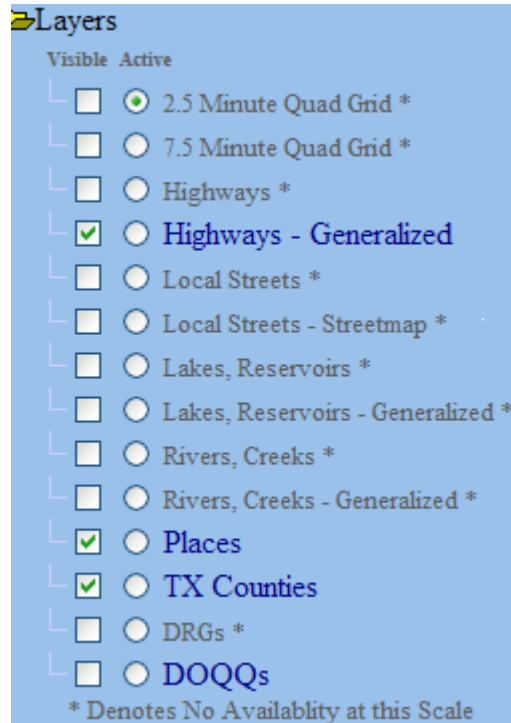


Figure 8

Each data layer has a check box and a radio button located to the left of its layer name. The first column of boxes indicates which layers are currently **visible** in the Viewer's map frame. An empty box indicates that the layer is **not visible**, while a checked box indicates that the layer is **visible**. You may turn on a layer (i.e., make it visible) by clicking in its check box. Multiple layers may be turned on at the same time. The Viewer's map frame will instantly refresh as map layers are turned off and on by the user.

However, if an asterisk "*" is located to the right of the layer's name, this indicates that the layer may not be displayed at the current scale. (See the note below the list of layers states that the asterisk "**Denotes No Availability at this Scale.**") At the full extent of the state of Texas, note that the **2.5 Minute Quad Grid** and the **Local Streets** layers may not be displayed. It may therefore be necessary to zoom in further to a county-wide area to be able to view these data layers.

The second column of radio buttons indicates which layers are currently **active** in the Viewer's map frame. When the circle is filled in , the layer is **active**, if the circle is not filled in , the layer is **inactive**. Only one layer can be active at a time.

What other functions are available?

At the bottom of the user interface, you will find two groups of functions: 1) *Search well by Grid number or/and County*; and 2) *Search map by city, address, or Lat-Long*. These functions can help you locate a grid cell or find a water well efficiently and easily. The first group of functions locates the water wells by working with the Oracle database containing water well reports; the second group of functions works on the map layers only.

Search Well by Grid# OR/AND County:

This group of functions can display a list of water wells by searching the water well database. To use these functions, ***please follow three steps***: 1) fill in a form as prompted; 2) check the box beside the form (fill in and check other form(s) if needed); and 3) click on the “Find Well” button. The user will get the final searching result - a table of water well records (see *Figure 5*). Note that activating the checkbox is necessary. The “Find Well” button will not execute a search function unless the user checks the box beside it. You can search the water well by either grid number, county name, or combination of both.

The following are the detailed descriptions for each function:

Grid #: To search water wells by grid number only, type in a valid Grid number in the form. Check the box beside the form and click the “Find Well” button. An error message or prompt will show if an invalid grid number is provided (see *Figure 9*) or no water wells were found in the given the grid number as shown in *Figure 10*.

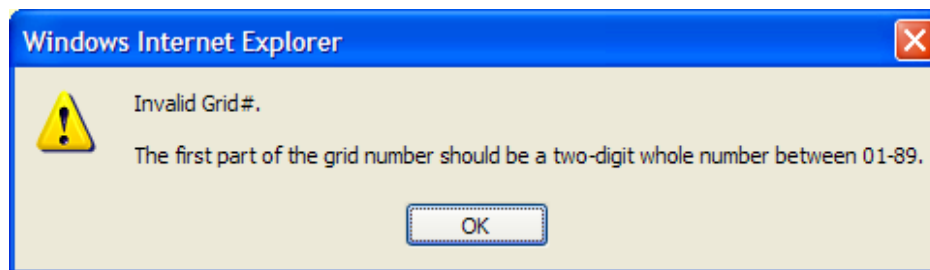


Figure 9

Water Well Reports

No water wells were found for your search - GRID NUMBER = "10-18-4"

Close Me

Today is: Wed Feb 11 09:03:40 CST 2009

Figure 10

County: To search water wells by county only, select a county name from the dropdown list, check the box beside “County” form after your selection, and click the “Find Wells” button. The map will automatically zoom in to the desired county area. The list of water well reports, if there are any, will display in a new browser.

To search water wells by combination of the above, please remember to check all desired boxes beside each search form and provide the valid information before clicking on the “Find Well” button.

Search Map by one of the following



These functions will shift the map display to a geographic area of your choice. You can select a geographic area by specifying a city, street address, or a set of latitude-longitude coordinates.

City: Choose a city name from the dropdown list. The map will directly zoom in to the desired city after the mouse button is released. The city boundary will be marked as light gray color on the map.

Address: Enter the street address **and** city **and/or** zip code (provide either city name or zip code, or both of them) in the proper spaces, and click on the “Find Address” button. The map will be directed to the desired address and labeled with the proper address information – address, city and zip code. This geocoding function can correct the minor misspelling errors in your input (address, city or zip), i.e., it can find the location by maximally matching the information you provided with the geo-data that have been stored in the data source.

Lat – Long: Enter the latitude and longitude in the proper spaces in the format of decimal degrees. Click on the “Find Lat-Long” button. The map will zoom to the map area based on the information you entered. If invalid information is given, a message will prompt you to the correct ranges of latitude and longitude.

Map Layers

The Table of Contents, the list of layers displayed on the right-side of the map display (see *Figure 11*), include all spatial data layers that are represented in the map view. The layer list can be shown/hidden by clicking on the image icon. (The image icon appears as  when the layers are displayed, and as  when the layers are hidden.)

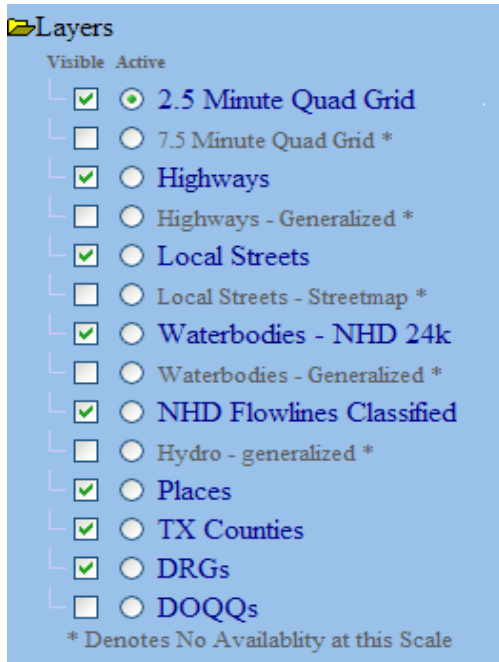


Figure 11

DRGs & DOQQs

Both the DRGs and DOQQs layers in the TOC include the layers for Zone 13, 14 and 15 in Texas. All DRG layers for Zone 13, 14, and 15 in Texas can be turned on/off by checking/unchecking the check box beside the DRGs. The same applies to DOQQ layers.

Please note that to make the DRGs or DOQQs layer visible, it is necessary turn off (uncheck) the “Places” and “Tx counties” layers first, because they are on top of the DRGs and DOQQs (see *Figure 12*).

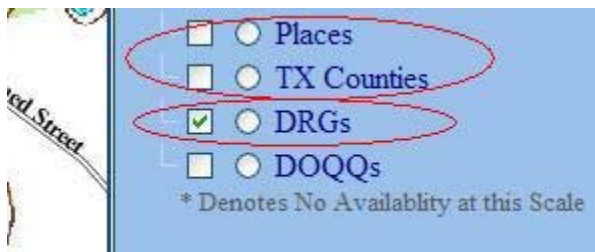


Figure 12



Please keep in mind that the fewer layers you have checked and activated, the faster your map will be generated and regenerate itself. The more data the map has to retrieve, sort and display, the slower the map will be generated.

Overview Map

An Overview Map is a generalized, smaller-scale map that shows the limits of another map's extent along with its surrounding area.

In the TCEQ Water Well Report Viewer, a smaller overview map is loaded in the right bottom of web page for every map display (see *Figure 14*). The overview map is helpful when trying to determine where you are when you are zoomed in on the main map; it can also help you determine what area you may want to view next.

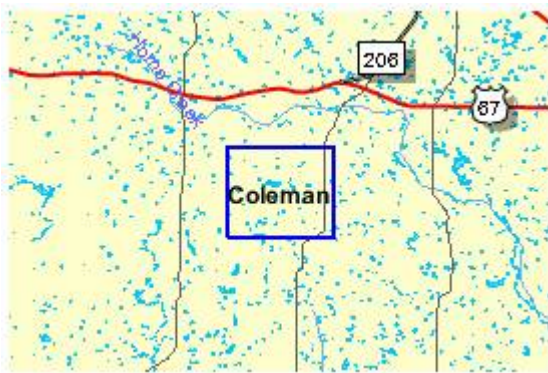


Figure 14