

### ***About PHOENIX***

The Department of Energy has partnered with the Pacific Northwest National Laboratory on PHOENIX, a family of spatially enabled web applications providing quick access to decades of valuable scientific data and insight through intuitive query, visualization, and analysis tools.

PNNL-Hanford Online ENvironmental Information eXchange provides a single access point to multiple data sets via standard web browsers. PHOENIX also provides data visualization tools and provides explanations of key data sets to aid understanding. PHOENIX applications are based on the innovative technology applied by the Pacific Northwest National Laboratory (PNNL) to access and visualize other environmental data sets at the Hanford Site.

By integrating previously isolated datasets and developing relevant visualization and analysis tools, PHOENIX applications are enabling DOE to discover new correlations hidden in legacy data, allowing them to more effectively address complex issues at Hanford.

### ***About Well Comparison Explorer***

Well Comparison Explorer allows users to compare the groundwater concentrations of Contaminants of Potential Concern (COPC) between sets of wells.

Well Comparison Explorer displays the groundwater concentration per well through time in a chart for single COPCs and shows all the data in tabular form. Spatial data visualization is possible using the built-in map, allowing users to: locate wells in the set; visualize recent, maximum and minimum concentration levels for a given COPC; and identify different well characteristics.

The COPCs used in the application are those found in the Hanford Annual Groundwater report.

### ***Questions, Comments, Concerns, Feedback?***

Contact the PHOENIX team: [PHOENIX@pnnl.gov](mailto:PHOENIX@pnnl.gov)

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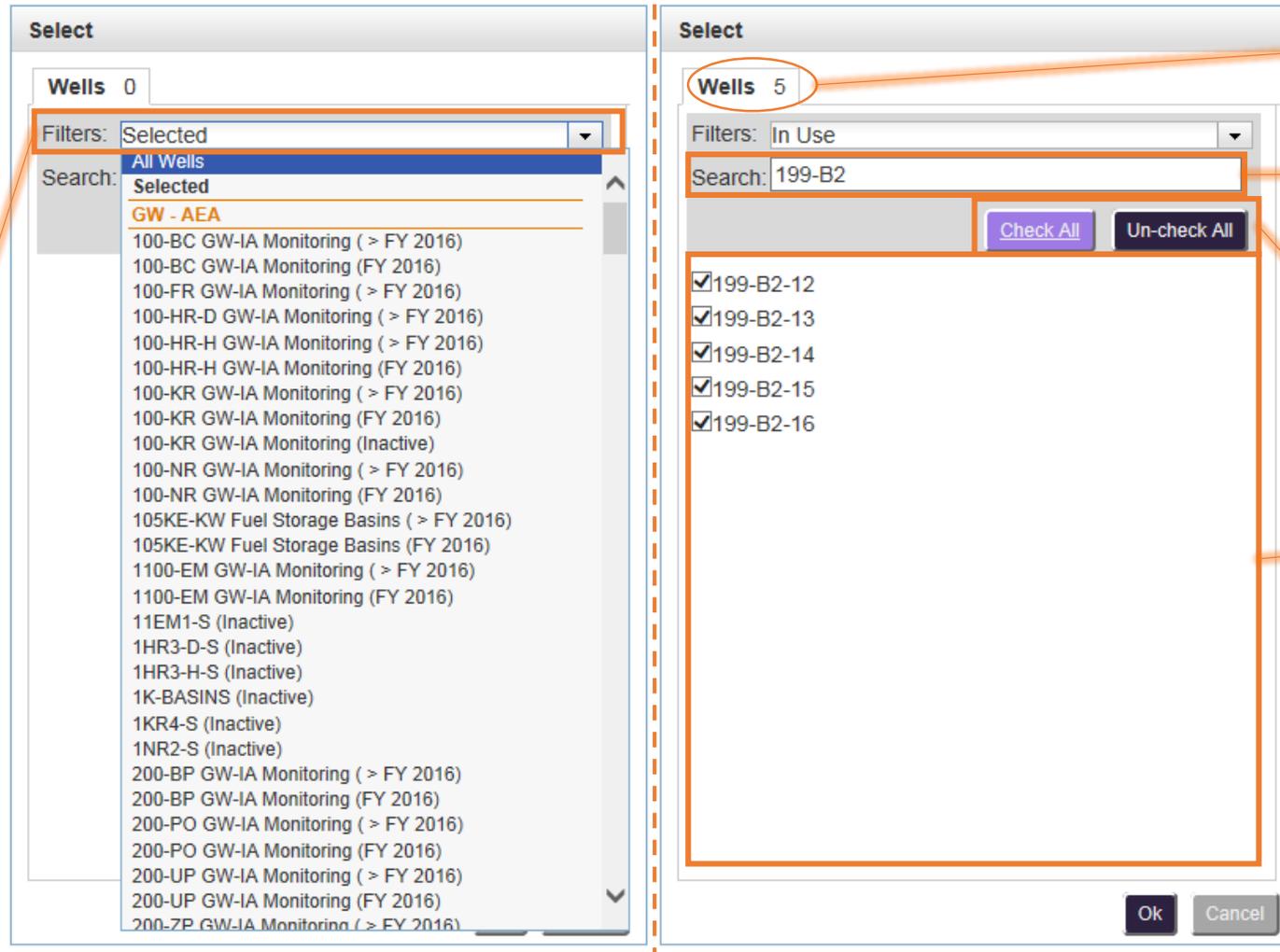
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### Well Select Dialog

When navigating from the Gallery, users are prompted to specify wells they would like to analyze using the Well Select dialog. When opening the Well Comparison Dashboard from a different application, the user's current well list will be used.

The Filters drop-down will filter the wells by pre-defined lists pulled directly from the Hanford Environmental Information System (HEIS)



The image displays two screenshots of the 'Well Select Dialog' interface. The left screenshot shows the dialog with 'Wells 0' and a list of wells under the 'Selected' filter. The right screenshot shows the dialog with 'Wells 5' and a list of wells under the 'In Use' filter, with search text '199-B2' and 'Check All'/'Un-check All' buttons.

Total number of selected wells.

Users can refine their results by specifying search text.

Click **Check All** to select all of the wells in the results list. Click **Un-check All** to un-select all of the selected wells in the results list.

Well results list. Wells can be selected individually by clicking the checkbox to the left of their name.

Switch between selected analytes by using the drop-down. Only Contaminants-of-interest found in the Hanford Annual Groundwater Report are available.

Filter all Active and Available wells based on pre-determined filters.

Open the Well Select dialog.

Move to a previously accessed application, or send the current well list to another application.

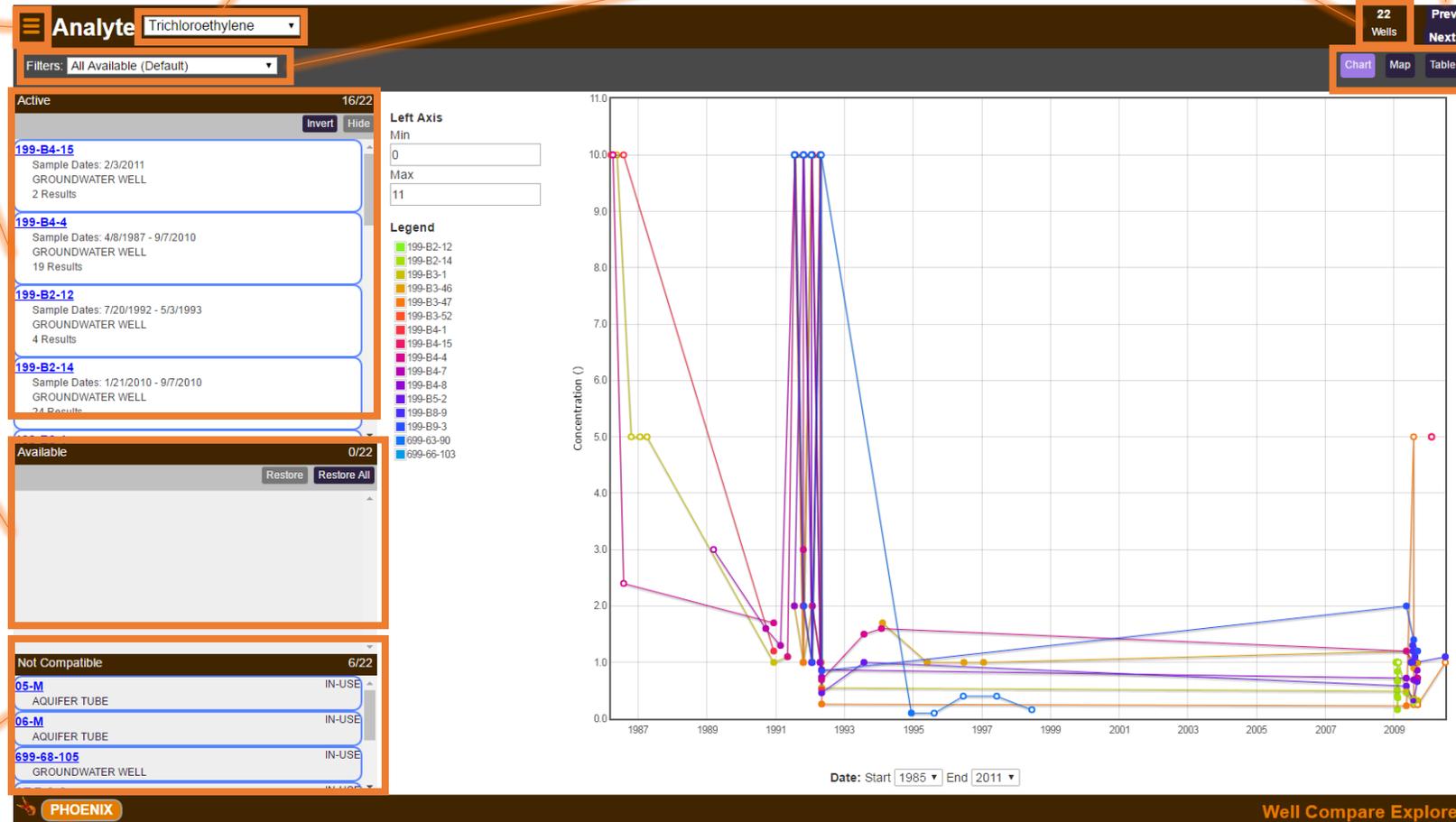
PHOENIX Menu

Active wells being displayed in the chart. To remove wells from the active list, select the well box to highlight and click **Hide**. To un-select a well, click it again. To invert your selection, click **Invert**.

Wells that have been hidden from the Active list will appear in the Available list. To add them back to the Active list, select the well, and click **Restore**. Restore All will move all available wells in the Active list.

Wells that have not been sampled for the selected analyte will be listed under **Not Compatible**.

Click the icon to return to the PHOENIX Gallery.

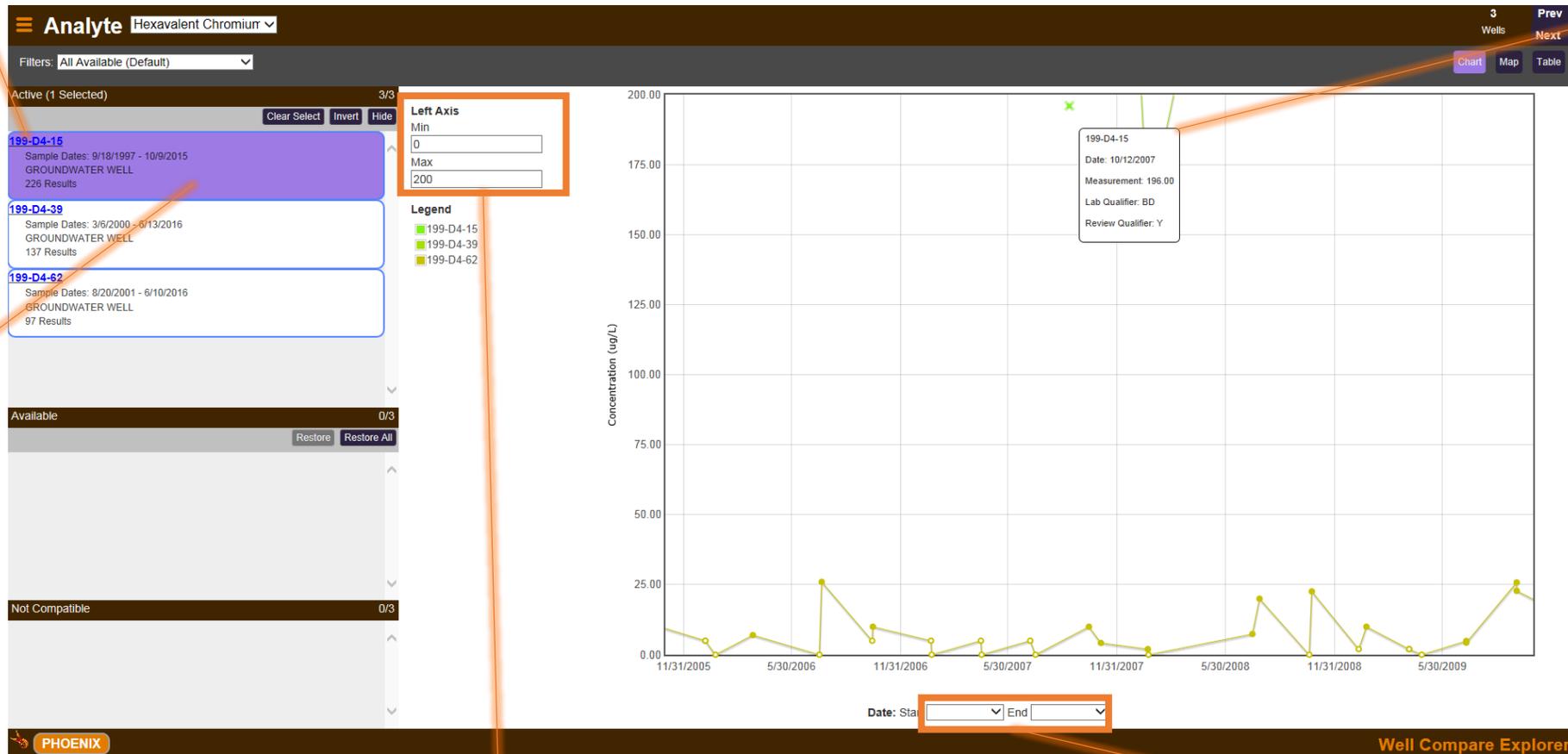


View data in chart (as shown), interactive map, or table.

### Chart View

Click on the well name to open the well in the Well Dashboard application. See Well Dashboard User Guide for more details.

Click on the List item to select. Selected items are highlighted in the chart.



Click on a point in the chart to bring up information for that sample result.

When you click on a point or line in the chart, that well is highlighted in the list (purple) and in the chart (bold line).

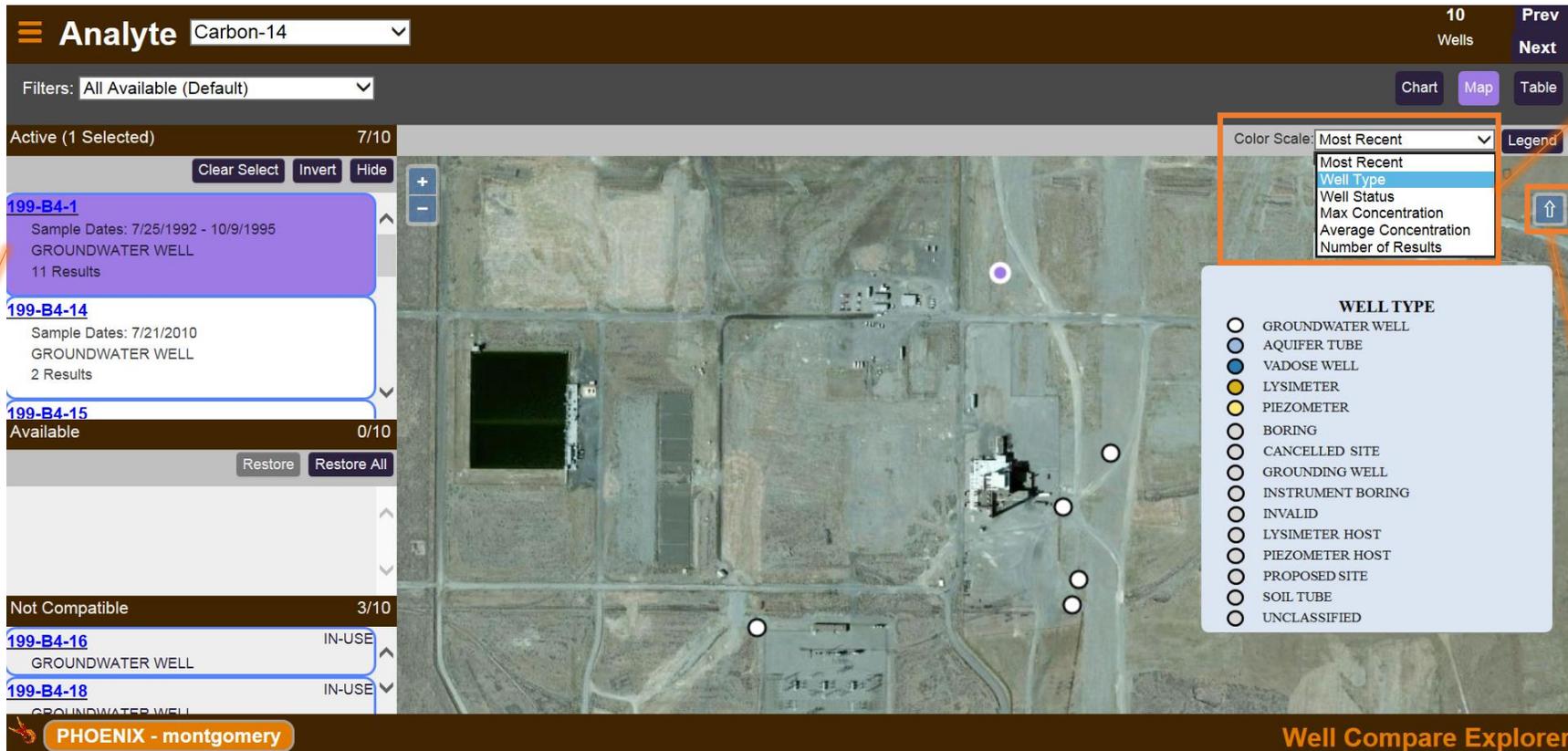
Data points in each time-series are filled circles except for the following conditions:

1. Data having a "U" lab qualifier have a hollow circle and are connected with the time-series line.
2. Data having a "Y" review qualifier have an "x" and are not connected by the time-series line.

Set x-axis min and max.

Change the date spans within the chart.

### Map View



**Analyte** Carbon-14

Filters: All Available (Default)

Active (1 Selected) 7/10

- 199-B4-1  
Sample Dates: 7/25/1992 - 10/9/1995  
GROUNDWATER WELL  
11 Results
- 199-B4-14  
Sample Dates: 7/21/2010  
GROUNDWATER WELL  
2 Results
- 199-B4-15  
Available  
0/10

Not Compatible 3/10

- 199-B4-16  
GROUNDWATER WELL  
IN-USE
- 199-B4-18  
GROUNDWATER WELL  
IN-USE

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Well Compare Explorer

Color Scale: Most Recent

- Most Recent
- Well Type
- Well Status
- Max Concentration
- Average Concentration
- Number of Results

Legend

WELL TYPE

- GROUNDWATER WELL
- AQUIFER TUBE
- VADOSE WELL
- LYSIMETER
- PIEZOMETER
- BORING
- CANCELLED SITE
- GROUNDING WELL
- INSTRUMENT BORING
- INVALID
- LYSIMETER HOST
- PIEZOMETER HOST
- PROPOSED SITE
- SOIL TUBE
- UNCLASSIFIED

Select a well by clicking on the point in the map or in the Active well list. Wells can also be selected by clicking their symbols on the map.

Click the **Legend** button to activate the map legend. In the **Color Scale** drop-down, select how you want the well features styled/displayed.

To rotate the map, click Alt+Shift and drag your cursor to the desired rotation. To reset the map rotation to North-up, click the blue up arrow.

### Table View

Sort on a column by clicking on the column header.

Analyte: Carbon-14

Filters: All Available (Default)

Active (1 Selected) 7/10

Name	Well Type	COPC Name	Status	Start Date	End Date	Units	Minimum	Average	Maximum	Min	Max	Results
199-B4-1	GROUNDWATER WELL	Carbon-14	IN-USE	7/25/1992	10/9/1995	pCi/L	-78	-7.94	11	10/9/1993	10/20/1992	11
199-B4-4	GROUNDWATER WELL	Carbon-14	IN-USE	7/25/1992	9/7/2010	pCi/L	-77	5.69	96	10/13/1993	10/21/1992	14
199-B4-5	GROUNDWATER WELL	Carbon-14	IN-USE	7/23/1992	10/12/1995	pCi/L	-69	18.11	290	10/18/1993	7/23/1992	10
199-B4-7	GROUNDWATER WELL	Carbon-14	IN-USE	7/23/1992	10/12/1995	pCi/L	-86	16.3	250	10/18/1993	7/23/1992	8
199-B4-8	GROUNDWATER WELL	Carbon-14	IN-USE	7/18/1992	9/2/2010	pCi/L	-18	5.51	42	1/17/1993	7/18/1992	13
199-B4-14	GROUNDWATER WELL	Carbon-14	IN-USE	7/21/2010	7/21/2010	pCi/L	2.61	3.06	3.51	7/21/2010	7/21/2010	2
199-B4-15	GROUNDWATER WELL	Carbon-14	IN-USE	2/3/2011	2/3/2011	pCi/L	-10.1	-0.35	9.39	2/3/2011	2/3/2011	2

Showing 1 to 7 of 7 entries

Table Type: Summary  
Date of: Measurements

Previous 1 Next

Select a well by clicking on the row in the table or in the Active well list. Selected wells will be highlighted in purple.

Change what information is displayed in the table by selecting **Summary** or **Measurements** in the Table Type dropdown.

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