

QUICK TUTORIAL:

New Features Introduced to CDL's Catalyst in 2025

Summary New Features and Improvements

- Summer 2025: Four new columns are now available in the *Column Chooser* in Catalyst. Well license numbers have been used to group multilaterals, and the new columns indicate whether a lateral is the producing wellhead (*Producing Lateral*), provide an estimate of producing horizontal length of a given lateral (*Lateral Length*), and provide the total lateral leg count (*Lateral Count*) and the total lateral length associated with the complete multilateral (*Total Lateral Length*).
- Fall 2025: Performance improvements have been made to Catalyst's *Average Well Decline* chart as described in the tutorial below. The lateral length data has been incorporated into the *Average Well Decline* (or *Average Type-Well Curve*) chart such that the curves can be normalized by 1000m lateral length. Additional averaging methods have been introduced, and there is now the ability to easily de-select wells to be averaged. A "Generate Average Decline" button has been included to increase generation speed and reduce chart hang.
- Fall 2025: CDL's new and improved *Operator and Zone of Interest Summaries* have now returned to Catalyst. The *Operator Summary* now uses percentiles developed from the EURs generated from the well declines and forecasts, and the *Zone of Interest Summary* re-introduces updated versions of our regional maps and schematic cross-sections. These summaries can be accessed in a new tab by clicking *Operator Current* and *Zone of Interest* hyperlinks as described in the tutorial below.

Tutorial Introducing New Features

For this tutorial, we are going to take a look at an operator drilling multilaterals in both the Clearwater and in the Mannville Stack, Rubellite Energy. Using the **Search Panel** on the upper left, let's query Rubellite's current production by selecting them as the *operator* and adding a search parameter for currently producing wells as shown below:

Parameters

Zone Of Interest	▼	In	▼	Select...	▼	
Type Curve Area	▼	In	▼	Select...	▼	
Detailed Play	▼	In	▼	Select...	▼	
Operator Current	▼	In	▼	Rubellite Energy		
Direction	▼	In	▼	Select...	▼	
Rig Release Date	▼	>	▼	yyyy-mm-dd		
Liquids Wells	▼	=	▼	Select...	▼	
Curr Prod BOE (boepd)	▼	>	▼	0		

Add Search Parameter

Well Results Panel

The well listing resulting from the search will show up in the **Well Results Panel** on the upper right. Select *Operator Current* from the *Group By* dropdown and press the SUM radial button to get a summary of Rubellite's current overall production.

Use the Column Chooser on the top far right, and scroll or type in the search box to select *Sum Curr Prod BOE* and add it to the columns displayed.

Well Results Grouped by Operator Current(SUM)

		Group By	Operator Current ▼	☐ AVG ☒ SUM	Rows per page	20 ▼	1 - 1 of 1	<	>		
Colour	Operator Current	Well Count	Sum Curr Prod Daily Gas (mcf/d)	Sum Curr Prod BOE (boepd)	Sum Curr Prod Daily Oil (bopd)						
	Rubellite Energy	212	10,747	12,001	10,210						

Next, select *Zone of Interest* in the *Group By* dropdown to get a summary of the zones from which Rubellite is producing, and click on the title of the *Well Count* column to sort by well count.

Well Results Grouped by Zone Of Interest(SUM)

		Group By	Zone Of Interest ▼	☐ AVG ☒ SUM	Rows per page	20 ▼	1 - 6 of 6	<	>		
Colour	Zone Of Interest	Well Count	Sum Curr Prod Daily Oil (bopd)	Sum Curr Prod Daily Gas (mcf/d)	Sum Curr Prod BOE (boepd)						
	Cleanwater	134	5,782	9,801	7,416						
	Waseca	68	4,288	883	4,435						
	Grand Rapids	3	18	15	20						
	Lloydminster	3	34	35	40						
	Wabiskaw	2	55	13	57						
	General Petroleum	2	33	1	34						

To make the producing wells in each of these zones visible, select the arrow on the left-hand side to expand the list of related wells.

Well Results Grouped by Zone Of Interest(SUM)									
				Group By		Zone Of Interest	☐ AVG ☒ SUM	Rows per page	20
								1 - 6 of 6	
Colour	Zone Of Interest	Well Count	Sum Curr Prod Daily Oil (bopd)		Sum Curr Prod Daily Gas (mcf/d)		Sum Curr Prod BOE (boepd)		
* ●	Clearwater	134	5,782		9,801		7,416		
UWI(Formatted)	Location	Direction	Status	Operator Current	Zone Of Interest	Type Curve Area	Detailed Play	Rig Release Date	
00/01-02-057-18W4/00	1W405718020100	Horizontal	OIL	Rubellite Energy	Clearwater	Clearwater Redwater	Clearwater Redwater	November 4, 2021	
00/01-02-063-18W4/00	1W406318020100	Horizontal	OIL	Rubellite Energy	Clearwater	Clearwater Redwater	Clearwater Redwater	August 19, 2021	
00/01-10-057-18W4/00	1W405718100100	Horizontal	OIL	Rubellite Energy	Clearwater	Clearwater Redwater	Clearwater Redwater	January 31, 2020	
00/01-12-075-26W4/00	1W407526120100	Horizontal	OIL	Rubellite Energy	Clearwater	Clearwater Redwater	Clearwater Redwater	June 30, 2021	
00/01-14-062-18W4/00	1W406218140100	Horizontal	OIL	Rubellite Energy	Clearwater	Clearwater Redwater	Clearwater Redwater	June 6, 2025	
00/01-15-063-18W4/04	1W406318150100	Horizontal	OIL	Rubellite Energy	Clearwater	Clearwater Redwater	Clearwater Redwater	November 10, 2023	

Now, select *None* in the *Group By* dropdown to return to the list of wells. Add *Clearwater* as a *Zone of Interest* parameter in the **Search Panel** to select only the Clearwater wells for the next step.

At the top of the **Well Results Panel**, use the Column Chooser  on the top far right to select the *Producing Lateral*, *Lateral Length*, *Lateral Count* and *Total Lateral Length* and *IPMax Oil* columns. Unselecting some redundant columns such as *Location*, *Direction* and *Zone of Interest* can help make these columns visible.

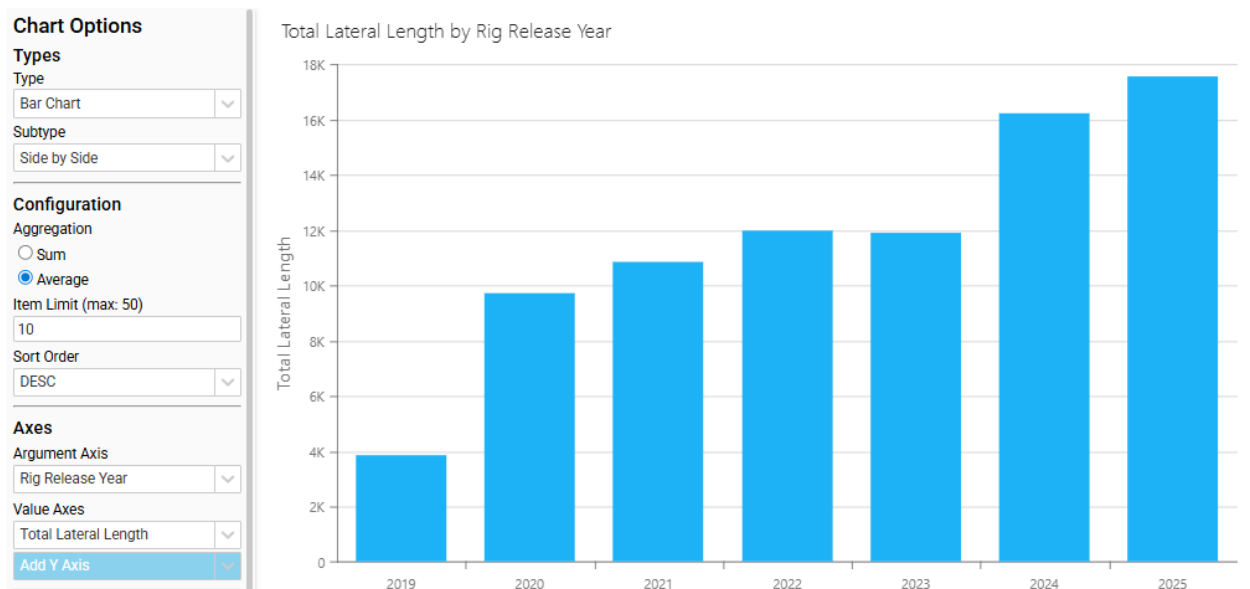
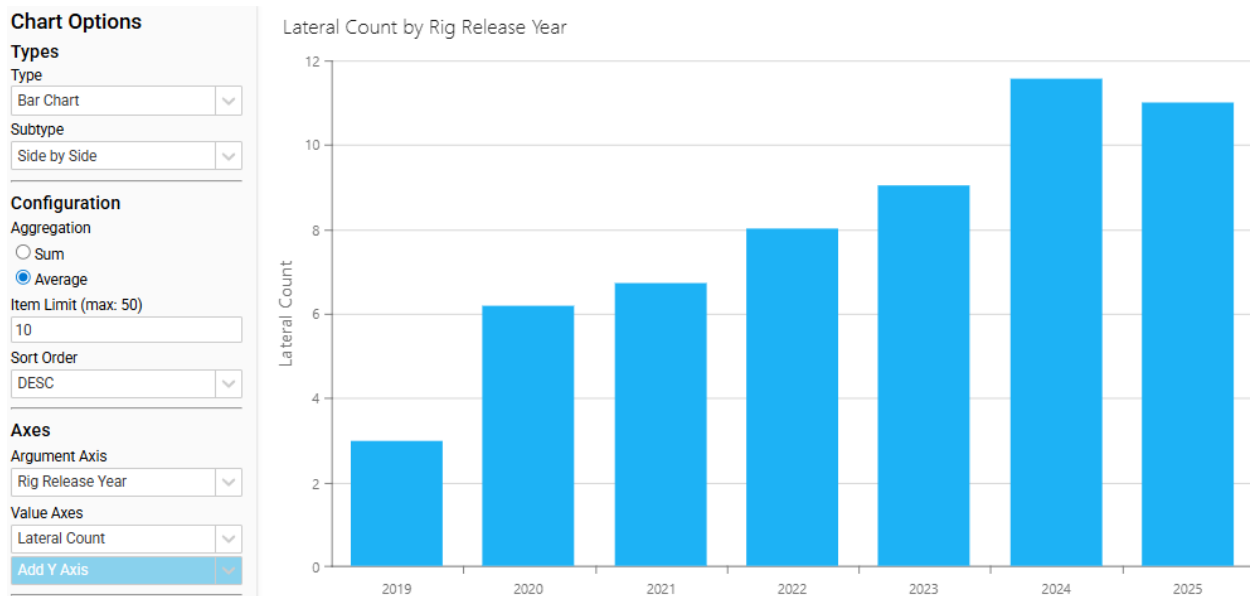
Well Results										
				Group By		None	Rows per page	20	1 - 20 of 134	
UWI(Formatted)	Status	Operator Current	Type Curve Area	Detailed Play	Rig Release Date	Total Lateral Length	Producing Lateral	Lateral Length	Lateral Count	IPMax Oil (bopd)
06/10-36-056-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	March 23, 2022	11,575	True	2,017	6	42
00/11-36-056-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	April 5, 2022	10,976	True	2,103	8	42
04/15-36-056-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	January 20, 2022	16,042	True	2,161	8	126
00/03-01-057-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	December 17, 2021	14,365	True	1,591	8	107
00/04-01-057-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	December 2, 2021	13,650	True	1,736	8	119
00/01-02-057-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	November 4, 2021	10,079	True	1,797	6	82
02/01-02-057-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	October 22, 2021	9,669	True	1,623	6	109
00/02-02-057-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	October 11, 2021	9,042	True	1,398	6	171

Where the *Producing Lateral* column is “True”, an *IPMax Oil (bopd)* is reported, indicating the well location with the production data associated with the multilateral. The *Lateral Count* indicates the number of lateral legs, while the *Total Lateral Length* is the horizontal length of all multilaterals combined. As an example of how this information can be used, the *IPMax Oil* rate can be normalized for 1000m lateral length by dividing the rate by the *Total Lateral Length* then multiplying by 1000, obtaining a rate per 1000m lateral length. This same sort of calculation can be performed on a number of different production metrics for different fluids and timeframes.

Chart Panel

The **Chart Panel** (lower right) provides many different graphing options in Catalyst, including bar, line, pie and scatter charts, which can be selected using the *Type* under *Chart Options*. In

this example, we are going to use the default Bar Chart option and adjust the Configuration and Axes as shown to learn more about Rubellite’s Clearwater multilateral drilling trends in recent years, since they acquired Perpetual’s Clearwater assets back in 2021.

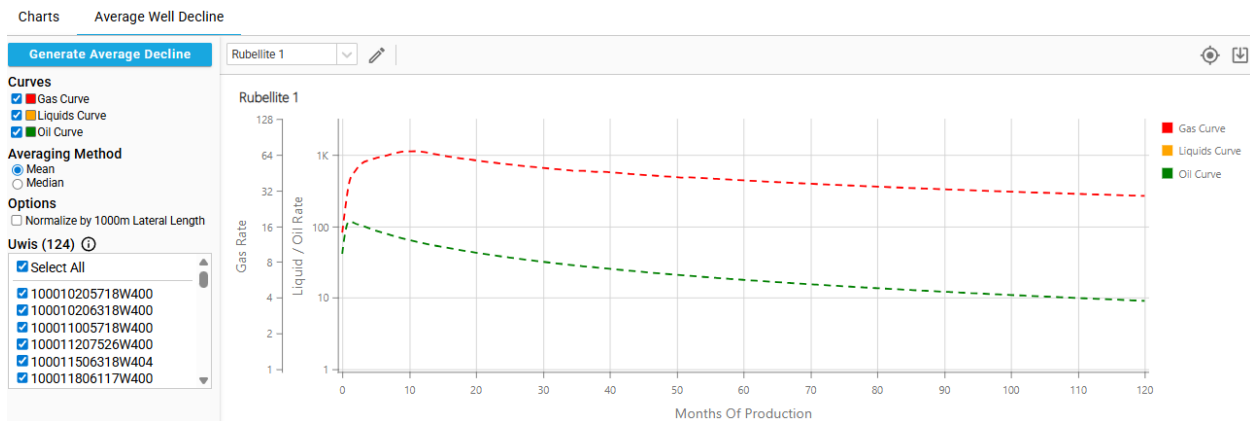


By adjusting the Value Axes to show “*Lateral Length*” or “*Lateral Count*”, one can see that, in general, Rubellite has increased the number of laterals and increased total lateral length over the last few years (this chart was as of Nov 2025 so will likely look different now). To further our understanding of production trends, an average decline (type-well) curve for can be created by selecting the Average Decline Chart.

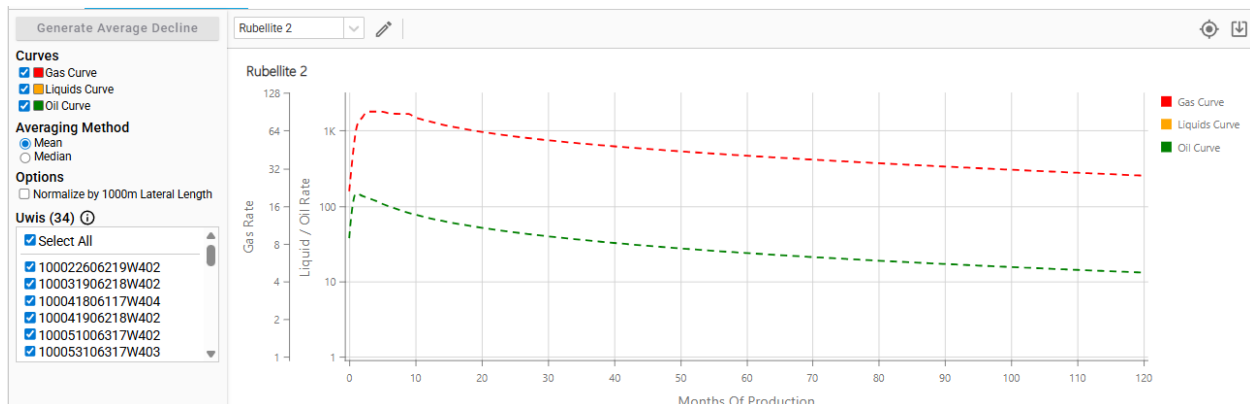
Chart Panel: Average Well Decline (Average Type-Well Curve)

As mentioned in previous tutorials, production decline curves and forecasts have been performed on most wells within Catalyst with more than six months of production using the Analytics for Energy Suite (A4E) from Blue River Analytics. The curves created on horizontal wells can be averaged, either by mean or median, to create an average type-well curve using the *Average Well Decline* chart.

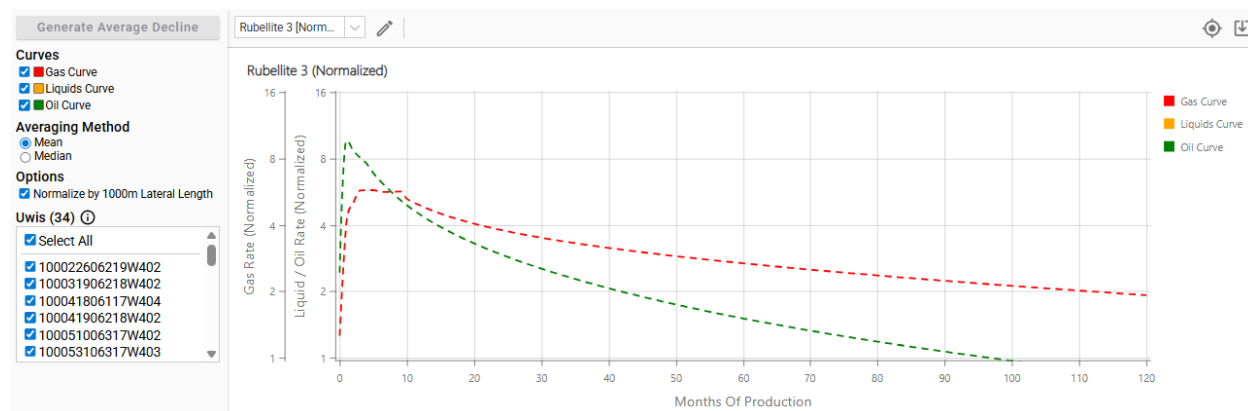
In the **Charts** panel, select the *Average Well Decline* chart. When the *Generate Average Decline* button is clicked, the chart will use the available decline curves for the wells listed in the results to create an average type-well curve for Rubellite horizontal wells in the Clearwater. If there are wells in the **Well Results** panel that need to be removed from the curve, they can be de-selected using the check box found on the left of the chart.



This type-well curve can be given a name and cached using the pencil icon at the top of the chart ("Rubellite 1" above). If we adjust the *search parameters* to use only wells with a *Rig Release Date > 2024-01-01* (Rubellite's newer wells) and select *Generate Average Decline* again - creating "Rubellite 2" below - we can compare the two curves using the curve name dropdown and see the oil production peak is higher and the curve flattens above the 10 bbl/d.



The curves can also be normalized by 1000m lateral length by clicking the check box on the left and regenerating the decline.



The curves can be also exported using the export icon shown on the upper right . An excel template is provided below that allows curves to be displayed on the same chart and EURs to be calculated from the curves.

[Average Decline Curve Clearwater Rubellite Example.xlsx](#)

New Feature: Operator Summary

CDL's improved Operator Summary has now returned to Catalyst, using percentiles developed from the EURs generated from the well declines and forecasts. The summary can be accessed on a new tab by clicking on the blue [Rubellite Energy](#) hyperlink in the Operator Current column.

Well Results

Group ByNone

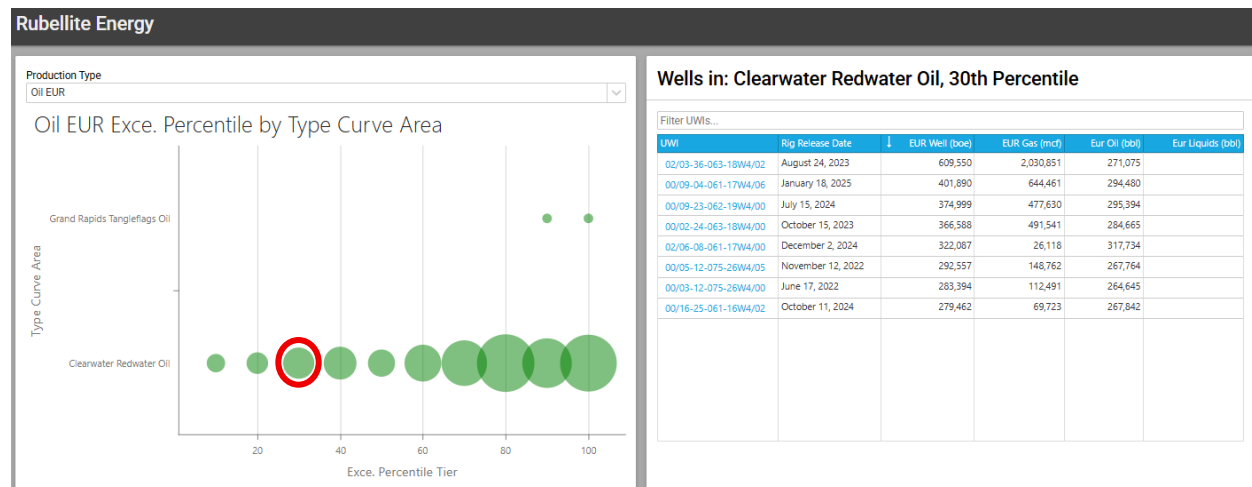
Rows per page20

1 - 20 of 134

UWI(Formatted)	Status	Operator Current	Type Curve Area	Detailed Play	Rig Release Date	Total Lateral Length	Producing Lateral	Lateral Length	Lateral Count	IPmax Oil (bopd)
06/10-36-056-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	March 23, 2022	11,575	True	2,017	6	42
00/11-36-056-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	April 5, 2022	10,976	True	2,103	8	42
04/15-36-056-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	January 20, 2022	16,042	True	2,161	8	126
00/03-01-057-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	December 17, 2021	14,365	True	1,591	8	107
00/04-01-057-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	December 2, 2021	13,650	True	1,736	8	119
00/01-02-057-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	November 4, 2021	10,079	True	1,797	6	82
02/01-02-057-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	October 22, 2021	9,669	True	1,623	6	109
00/02-02-057-18W4/00	OIL	Rubellite Energy	Clearwater Redwater	Clearwater Redwater	October 11, 2021	9,042	True	1,398	6	171

In the Production Type drop-down, select Oil EUR. The operator's wells in a given percentile can be viewed by selecting the bubbles on the chart on the left. When the 30th percentile bubble is selected from the graph on the left, it generates a list of wells within the percentile in the panel on the right. The 30th percentile (or P30) means there is a 30% chance an actual ultimate

recovery will be equal to or greater than this specific volume, and a 70% chance it will be less. We can see that Rubellite's newer wells dominate the P30 wells, suggesting that these newer multilaterals have been performing better than older ones, which corresponds to what was observed previously with the average type-well curves.



The selected operator can also be compared with other operators within the same *Type Curve Area* using the panels at the bottom. In the Production Type dropdown, select Oil EUR once again. Operators can be de-selected using the check marks on the left side. Let's say we wanted to compare Rubellite, Headwater and Cardinal by unchecking the other operators as shown below. It appears that while many of Rubellite's (early) wells performed in the lower tiers, many of Headwater's wells seem to have a more even distribution above and below the P50 tier. Cardinal's wells seemed to show a large variation in performance.

Operator Comparison

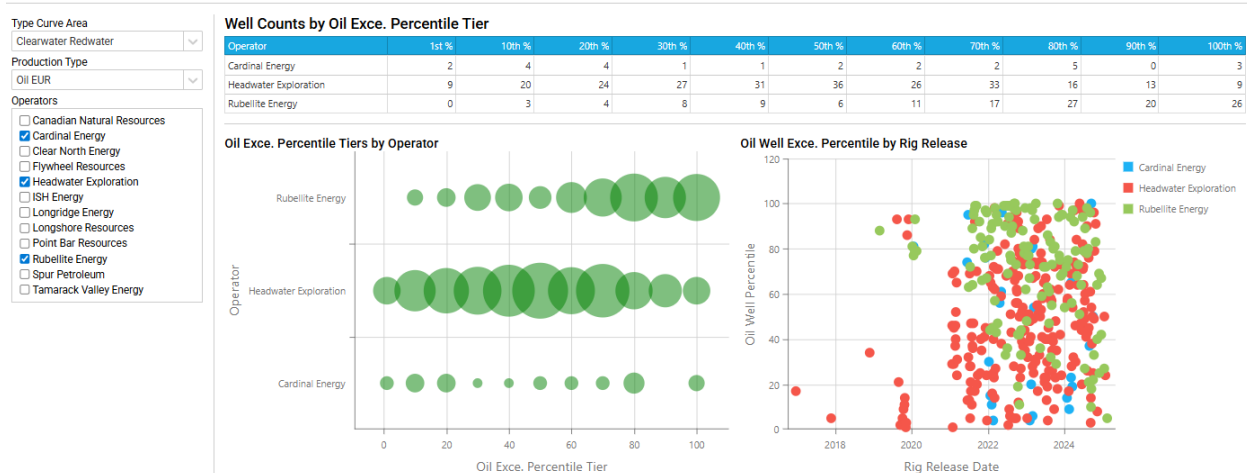
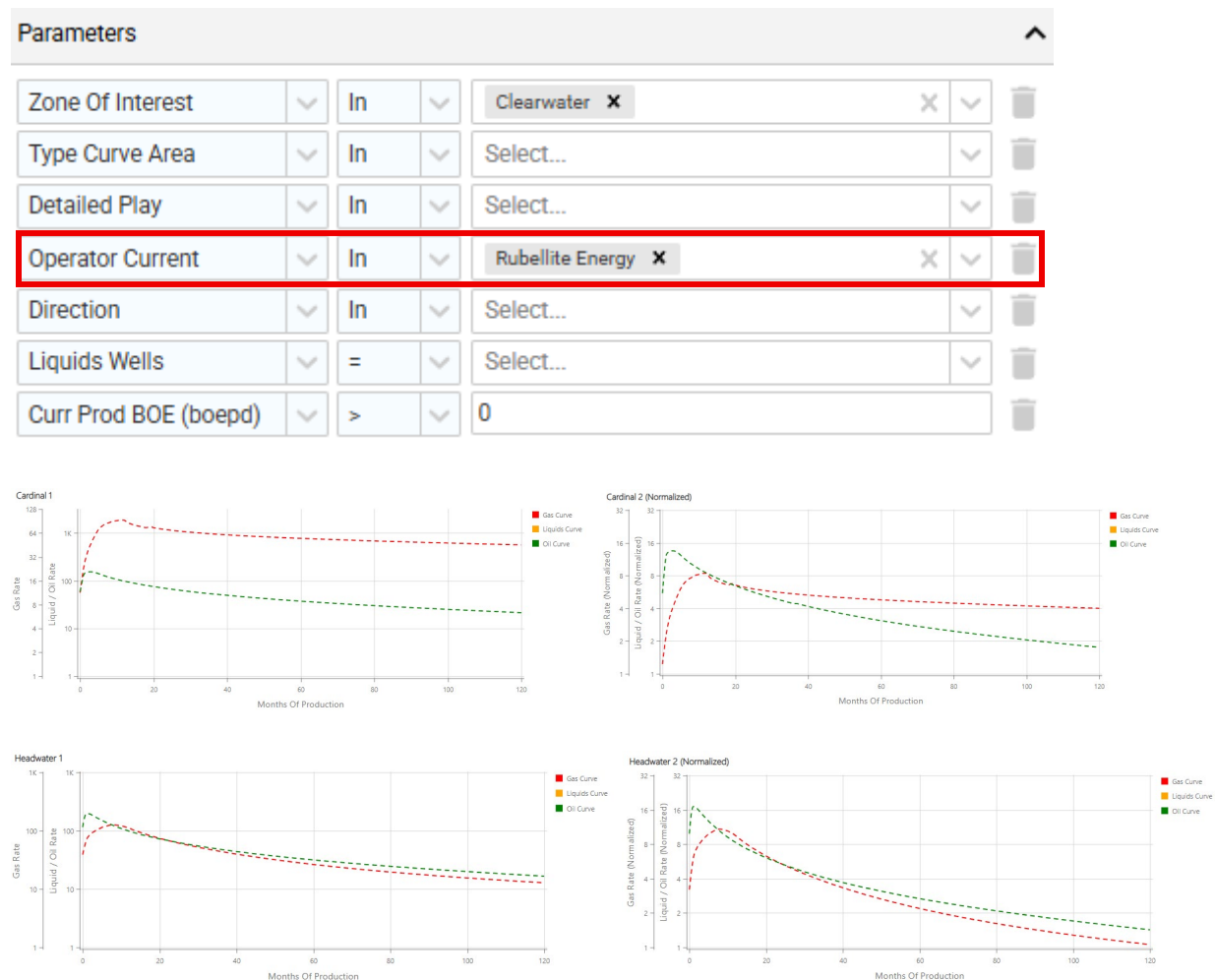


Chart Panel: Average Well Decline Comparison

How does this variation in EURs affect how the average type-wells curves look for each company? Try removing the Rig Release Date parameter and varying the operator in the **Search Panel** for the other two operators and naming and saving the curves to the cache. They can then be compared to cached curves already made for Rubellite (1).



New Feature: Formation Summary

With either the Cardinal or Headwater search parameters active above, return to the Well Results panel and this time select *Zone of Interest* from the *Group By* dropdown.

Well Results Grouped by Zone Of Interest(AVG)

Colour	Zone Of Interest	Well Count	Avg Curr Prod Daily Gas (mcf/d)	Avg Curr Prod Daily Oil (boepd)
●	Clearwater	284	62	82



Select the [Clearwater](#) link to access the **Clearwater Formation Summary**, where a *Regional Play Map*, *Operator Summary Graphs*, *Well Counts* and *Average Production* data can be accessed. De-select all *Included Plays* except for Redwater, and observe the graphs, well counts and production adjust accordingly.

Clearwater

Included Plays

☐ Select All

☒ Redwater
 ☐ Grand Rapids Leismer
 ☐ Spirit River Valhalla
 ☐ U Mannville Suffield
 ☐ Grand Rapids Branch Lake
 ☐ Grand Rapids Tangleflags
 ☐ U Mannville Ferrier
 ☐ Grand Rapids Hoole
 ☐ Spirit River Talbot Lake
 ☐ U Mannville Steep Bank

Regional Play Maps

Upper Mannville Fluvio-Deltaic West (including the Clearwater cold flow heavy oil play) March 31, 2025

Play: Upper Mannville Fluvio-Deltaic West (including the Clearwater cold flow heavy oil play)

Selected Plays: U Mannville Suffield, Redwater, Gasky Redwater, McLean Redwater, Wessac Redwater, Spirit Redwater, General Petroleum Redwater, Rex Redwater, Lloydminster Redwater, Grand Rapids Redwater, Clearwater Redwater.

Play Description: The Upper Mannville Fluvio-Deltaic West play comprises units from the top of the Clearwater Sandstone to the base of the Joli Roy Shale. Significant units include the Spirit River in NE AB, the Lacomber to Gasky package in SA and eastward AB and the Clearwater and Grand Rapids in NE AB. It is roughly bounded to the east by the lower Mannville Wainwright/Kinsley South Central Highlands trend and to the west by the Deep Basin.

The Upper Mannville is a regressive wedge of fossil and evaporite sands, shales and coals that was deposited on an extensive coastal plain interrupted by isolated islands of Paleozoic rocks (Cretaceous to Devonian, 1983). The wedge prograded northwest into the Clearwater Sea. At least two factors exerted some control over sedimentation. To the east, absorption of Clearwater with prograded heavily incised depositional patterns, while to the west, a region of greater subsidence (and thicker sedimentation) is bordered by the Fox Creek Basinward (Blackwell et al., 2002).

While heavy oil makes up the majority of the hydrocarbons produced from this play, much more was targeted for coastal methane development in the early 1980s. Methane play an increasingly large role in development with examples in the Clearwater at Hays, Marten Hills, Jorda and Urdy.

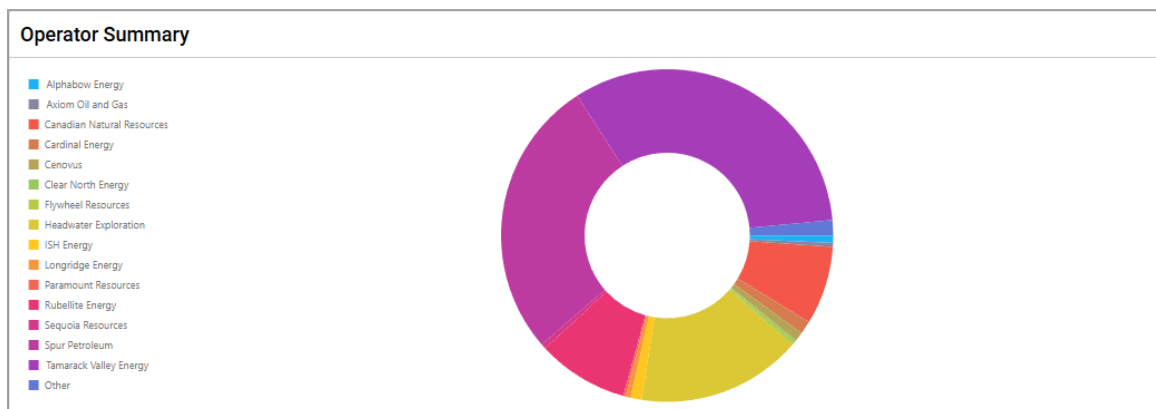
The Clearwater cold flow heavy oil (CF-HFO) play is a 200-400 km wide play on the Upper Mannville deep front at Marten Hills and Hays, west to the south along the Jorda trend, east of it in 2016. The play expanded again in 2021 to the Gasky/Petroleum area where CFB, interpreted the Grand Rapids, is far the productive unit. The Clearwater play is highly economic because operators are able to recover large volumes of highly permeable reservoir (often over 100 mD) using closely spaced open hole multistage fractures. The typical production using artificial lifting is between 1000 to 2000 bbl/d. As the Clearwater play matures, operators are experimenting with different multistage configurations and water floods are becoming more prevalent. The play also has the capacity to expand as operators step out with their drilling programs.

Legend:

- U Mannville Fluvio-Deltaic West
- Other U Mannville
- U Mannville Gas Hy. Pool
- Mannville and Geological Elements
- Mannville Evaporite Ridge
- Mannville Evaporite Ridge
- Other Paleozoic and Neoproterozoic
- Oil Sands Deposits

Inset Map Legend:

- Clearwater Cold Flow Heavy Oil
- Mannville Fluvio-Deltaic West
- Other U Mannville
- Other Paleozoic and Neoproterozoic
- Oil Sands Deposits



More about the Clearwater...

CDL hopes that this has been a helpful quick introduction to some new features within Catalyst. To learn more about Clearwater and Grand Rapids development through Nipisi, Dawson - Peavine and other northwestern parts of the Clearwater and Grand Rapids Play, look for our new **Clearwater Play Map** which has been released on our [CDL Play Maps](#) page.