



## **BLUE RIVER ANALYTICS: DECLINE CURVE (TERR MODEL)**

### **Overview**

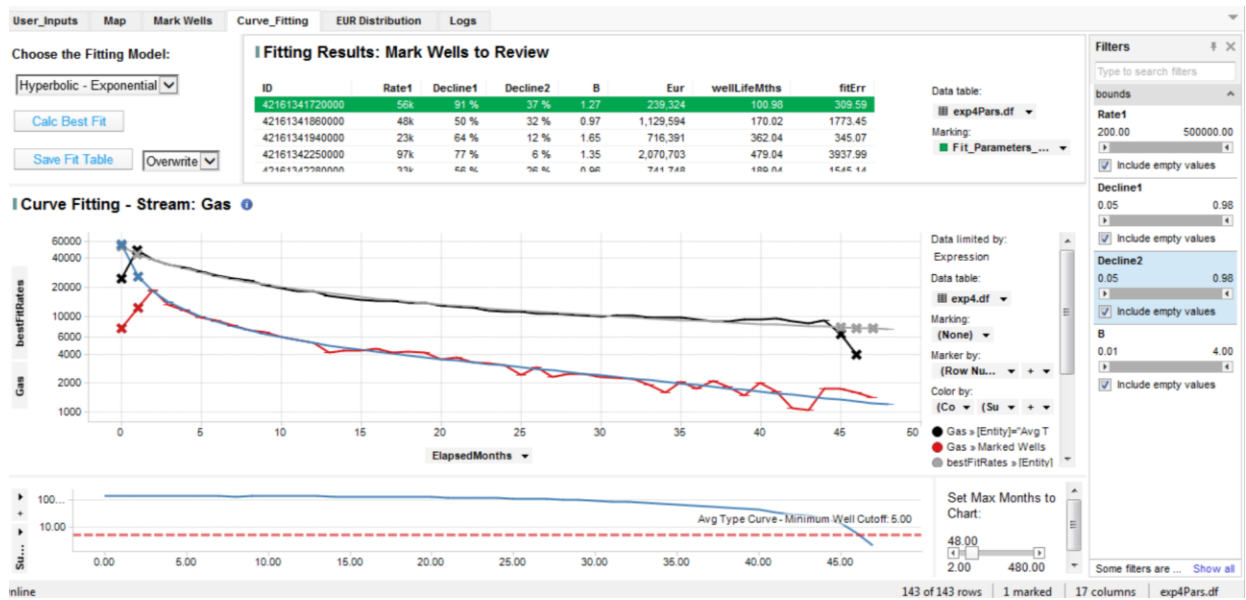
The Blue River Analytics Decline Curve Application Template uses production rates from a Spotfire data table, and performs time normalization, outlier detection and removal, and decline curve fitting using hyperbolic, exponential, or combined decline models. The fitting process can be guided by engineers' knowledge of key decline parameters, improving results in areas of poor or limited production data. Along with estimates of best fit decline parameters for all marked wells, an aggregated 'type curve' is computed by combining decline parameters across wells. EUR's are also calculated, along with forecast life of the well up to its economic limit, and the RMS error between the best fit model and the actual production data.

### **Key benefits:**

- Estimate best fit decline rates, IP's and other decline parameters in real time, across a user-defined group of wells using a variety of fitting models from simple exponential decline, to hyperbolic-exponential hybrids for modeling unconventional production.
- Calculates EUR's for economic analysis, reservoir characterization, and discovery of relationships between areas of low and high recovery with other parameters such as completion technique, operator, zone, etc.
- Calculates a type-curve aggregation across all marked wells, giving engineers a reference decline curve against which other wells (e.g. with limited or poor data, in different areas of the field) can be compared.
- Fitting parameters and EUR's for all wells can be saved to an Excel / text file with a single button click, making them available for use in other client applications.
- Data requirements are simple and easily configured, requiring simply 4 columns: Unique well identifier, Date, Oil, and Gas monthly production rate measurements. Other well header information is optional, and can be included as per client requirements to enhance visualization and data discovery around fitting results.



### Screen Shot of Blue River Decline Curve Template:



This screen shot shows fitting results for 143 wells in the Arkoma Basin, using hyperbolic to exponential fitting model. Aggregated type curve with best fit (black and grey lines respectively) are shown with individual well fit. Best fit parameters for the marked (displayed) well along with any other well can be reviewed in the table visualization at top.

### About Blue River Analytics:

Blue River Analytics makes our customers smarter. Utilizing deep expertise in the energy industry and TIBCO Spotfire, we create easy-to-use applications for visual and predictive analytics, enabling our customers to make faster, smarter decisions.

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