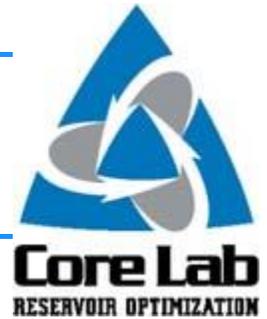
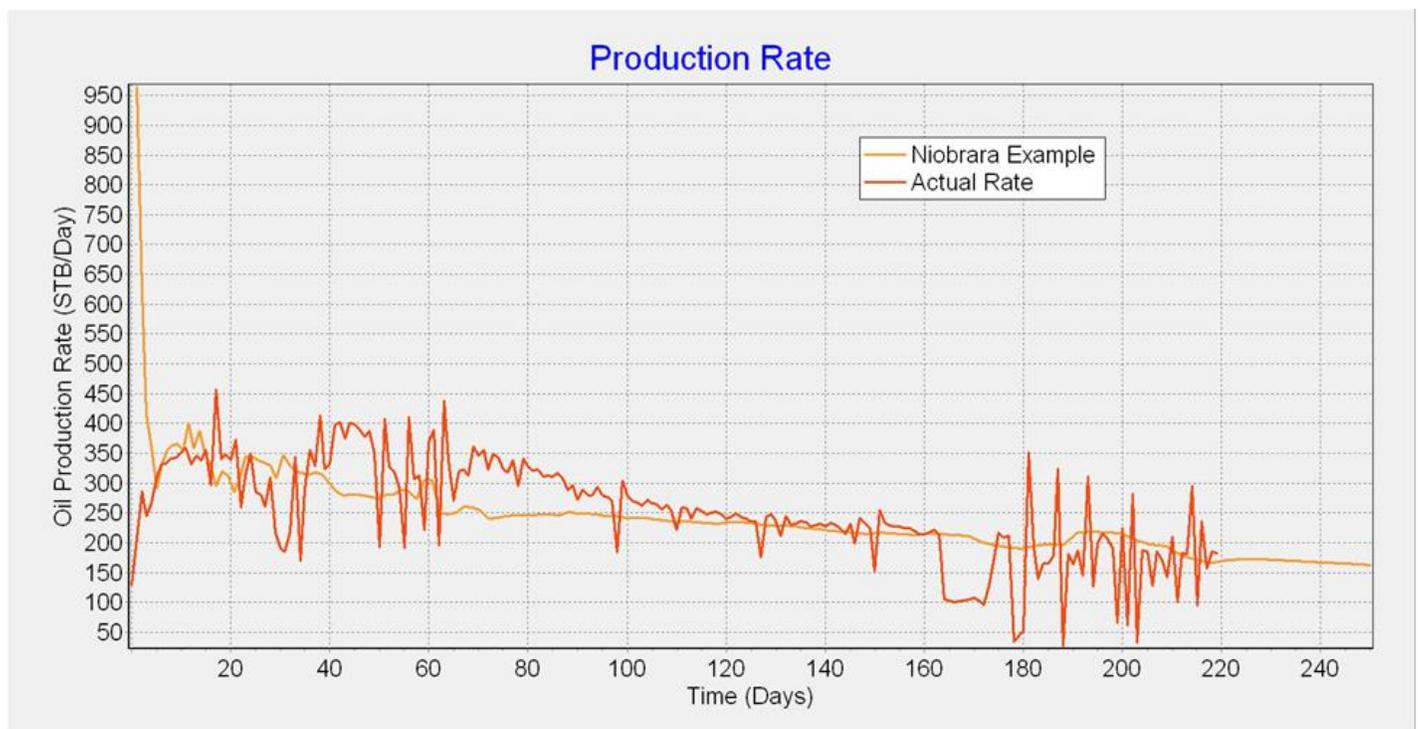


# Predict-K “Tip of the Month”

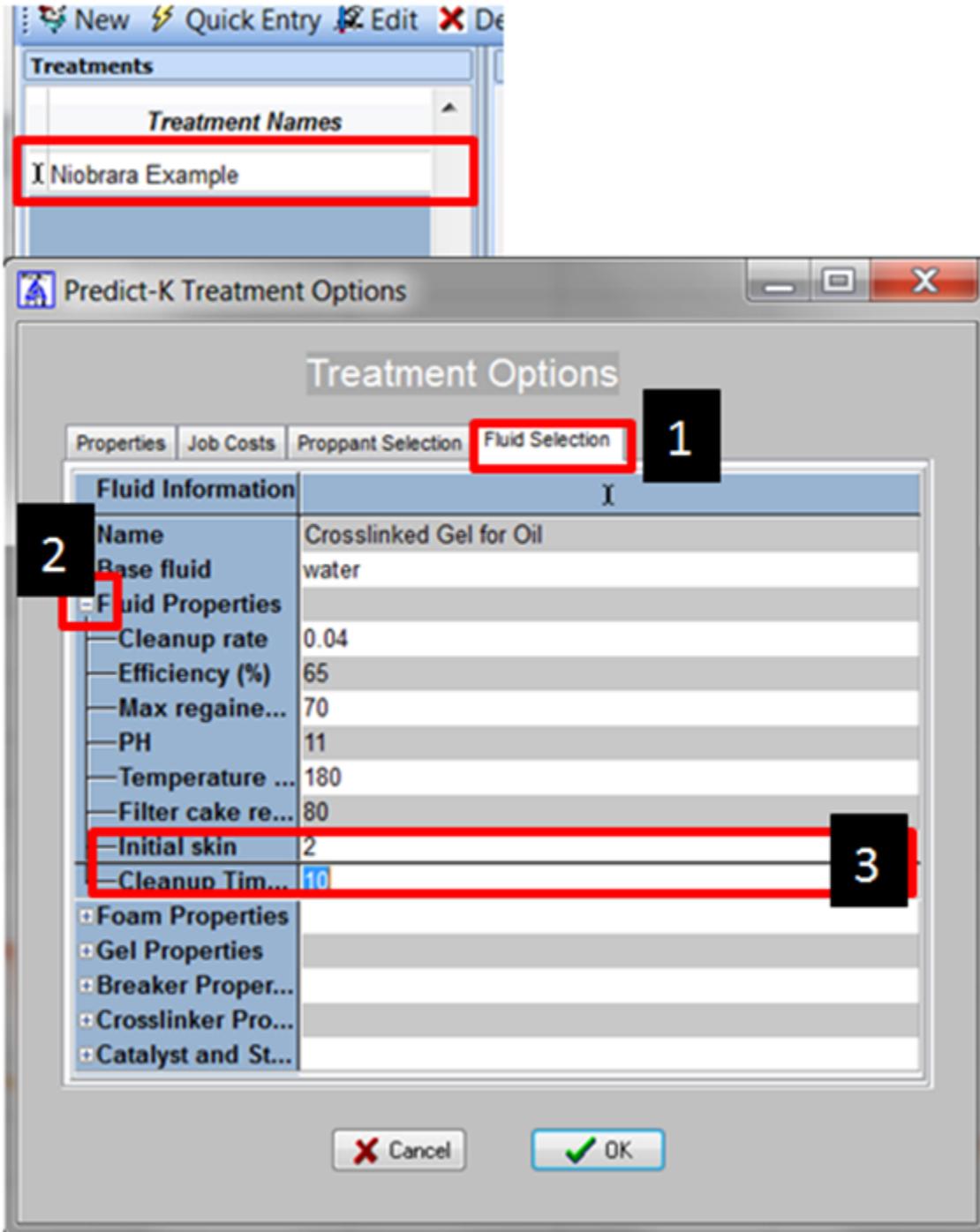


## Matching Early Time Cleanup

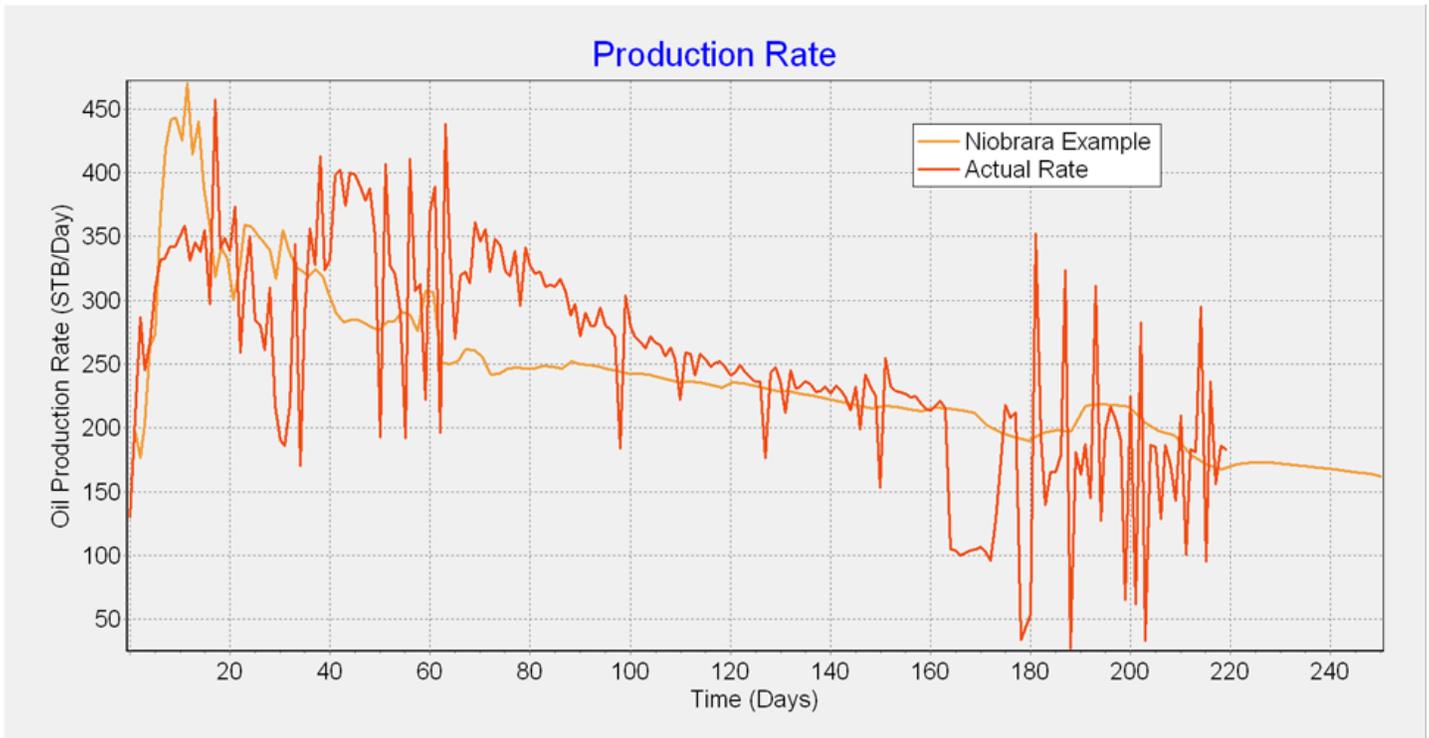
Often, early time hydrocarbon production is hindered by a variety of damage factors that must be removed or reduced before the full hydrocarbon potential can be realized. The dominant damage factor is the water that remains in the fracture that has just not had time to be unloaded. Even the choke management can manifest itself as an apparent skin in the production simulation. The net effect of this damage is that the highest production rates do not occur until many days after the start of hydrocarbon production. The type curves on which the Predict-K production simulator is built are not designed to account for this damage and therefore, cannot model this behavior. The plot below shows an example of this behavior from the Niobrara:



The late time data is matched pretty well, but in the first ten days, the Predict-K estimate is far above the actual production rate. In 2009, a feature was added to Predict-K to account for this behavior. Inside the fluid properties, you can add an initial skin and cleanup time to achieve a better early time match. The skin will start at the initial skin value and be slowly removed over the cleanup time specified. To use this feature, double click on the treatment on the left side of the screen and click on the fluid selection tab. Finally, click on the plus side next to fluid properties in order to edit those properties:



In this example, an initial skin of 2 and cleanup time of 10 days provide the best match. Finding the proper values can take some trial and error, but a good starting point for skin is usually 5 or 10, and the time to peak production can be used as an initial guess for cleanup time. You should be able to find good values after a few attempts. The final production match is shown below:



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