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Appendix J – Groundwater & Streamflow Figures

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Groundwater & Streamflow Figures

As described in Section 6 (Groundwater Assessments) of the Integrated Water Resources Plan, a comprehensive groundwater monitoring network (see Figure 1 below) was evaluated to provide critical insight into how groundwater levels respond to Basin-wide hydrologic conditions. The network includes twenty-one groundwater monitoring stations organized into ten clusters, each strategically located on higher ground, away from floodplains and outside the immediate influence of surface water reservoirs to ensure measurements reflect natural, long-term groundwater conditions.

The analysis focused on understanding how measured groundwater levels correspond to modeled streamflow and seepage dynamics, which represent the movement of water into the groundwater system. To evaluate these relationships, a comparative analysis was conducted for each monitoring well. The primary goal was to quantify the strength and consistency of the correlation between observed groundwater depths over time and the modeled flow and seepage, allowing for a clearer understanding of how groundwater levels reflect broader hydrologic inputs. Figures showing these relationships for 19 of the 21 monitoring wells are provided herein (figures for Well KB-126 and 127 are provided in Section 6 of the main report).

For each well, the figures present observed and simulated groundwater levels over the modeling period for the applicable scenarios discussed in Section 6. These supplemental figures support and extend the interpretation of groundwater conditions presented in the main text by documenting well-specific responses that are summarized but not shown individually in Section 6.

Findings from the analysis across all monitored wells consistently revealed a strong, direct correlation between groundwater depth below ground and the modeled streamflow and seepage time series. This consistent pattern confirms that the primary driver of groundwater level fluctuations is variations in surface flow and deep seepage, which are, in turn, driven by climate patterns and events. Overall, the results indicate that changes in groundwater levels closely follow broader hydrologic trends, reflecting the integrated response of the aquifer system to regional and local water inputs.

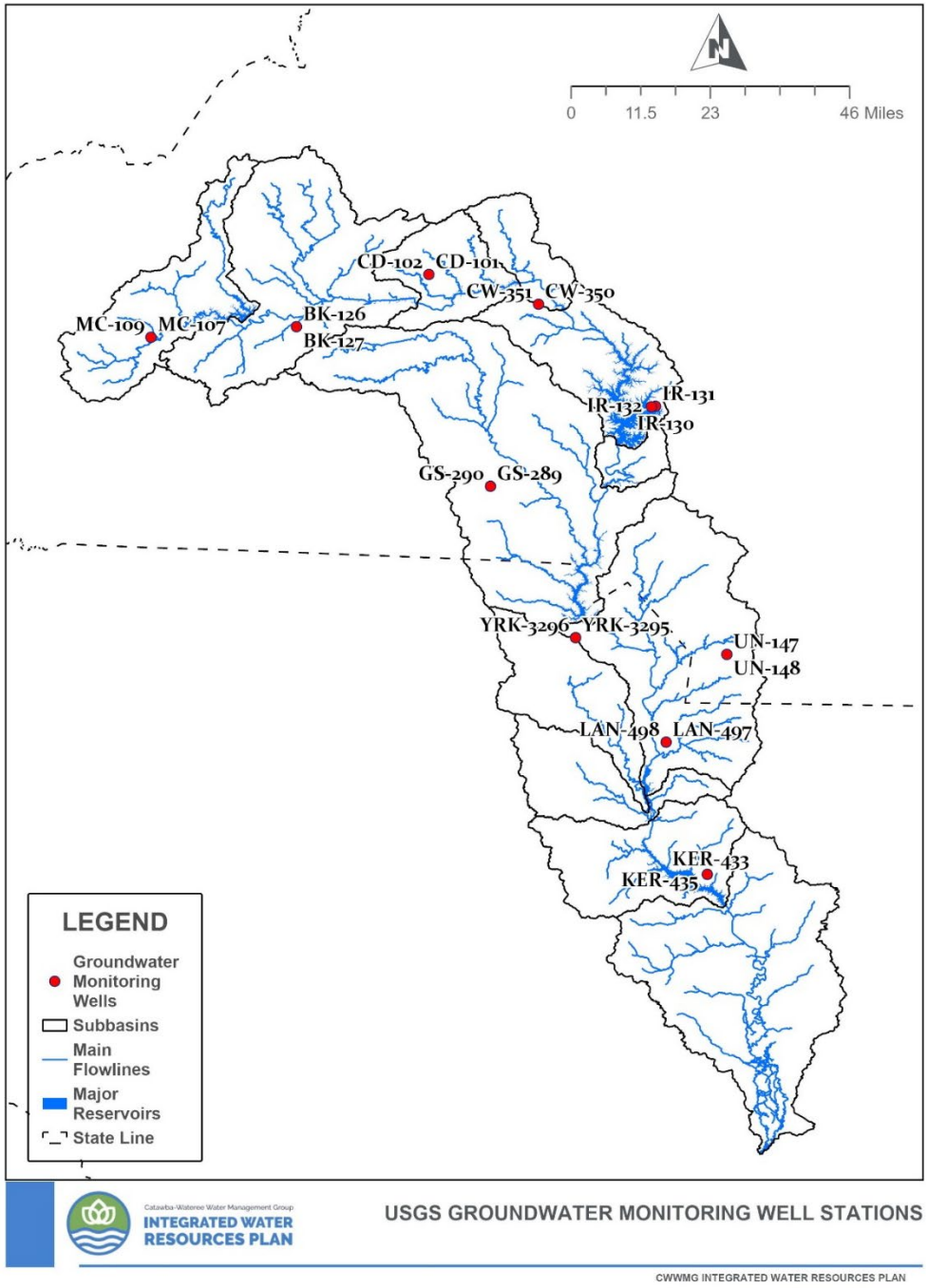


Figure 1. Groundwater Monitoring Well Stations in the Catawba-Wateree Basin.

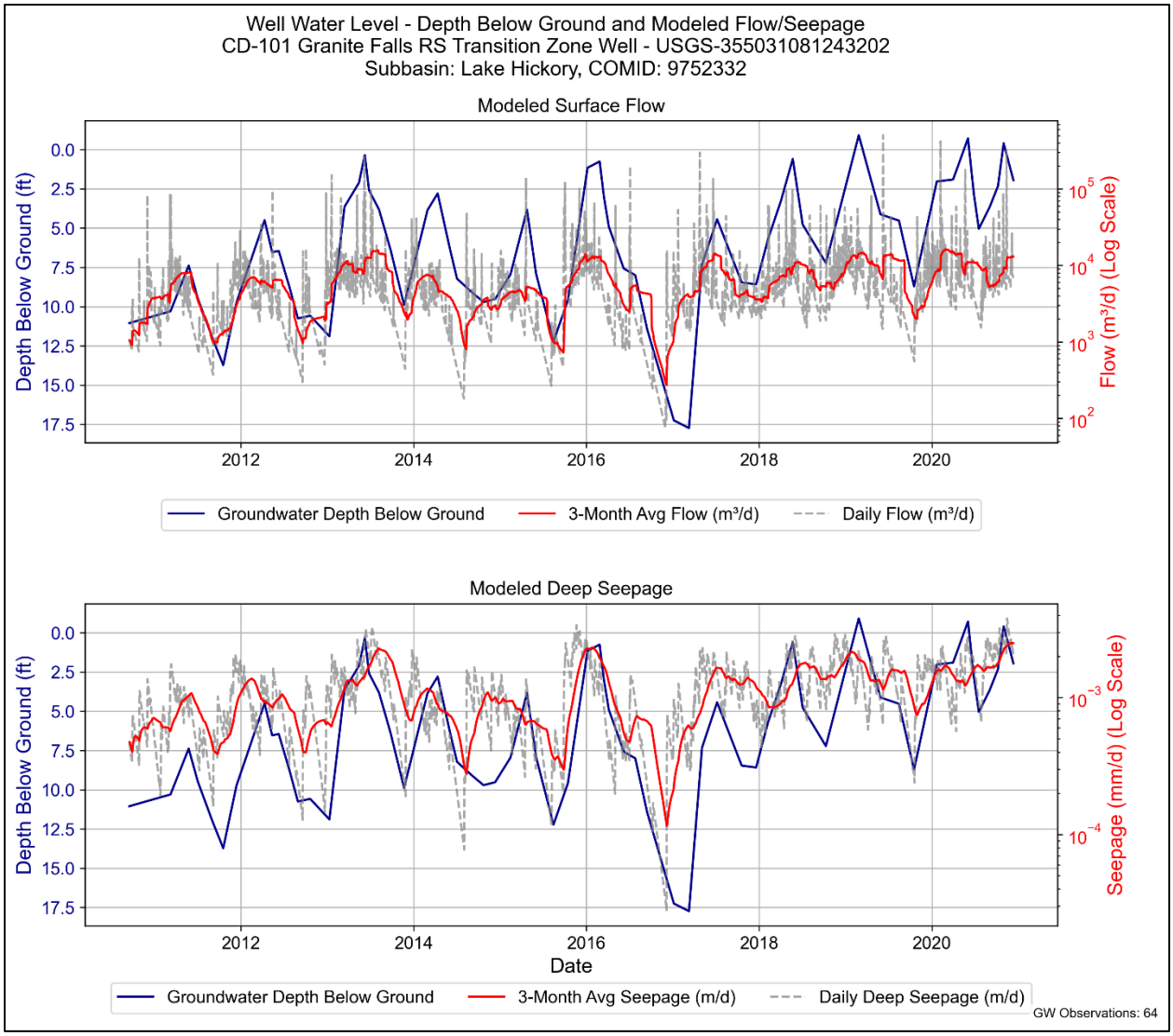


Figure 2. Monitoring Well CD-101

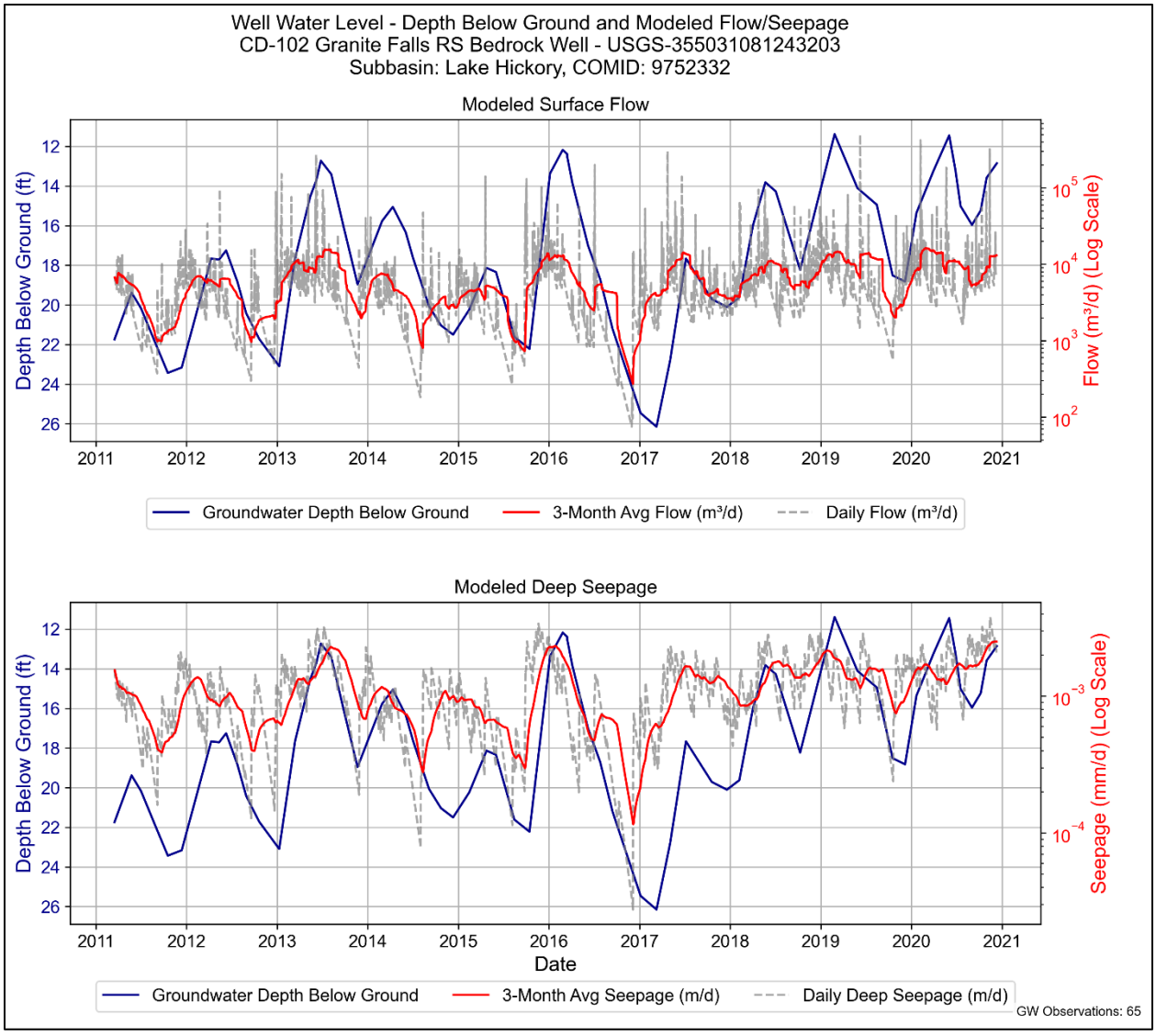


Figure 3. Monitoring Well CD-102

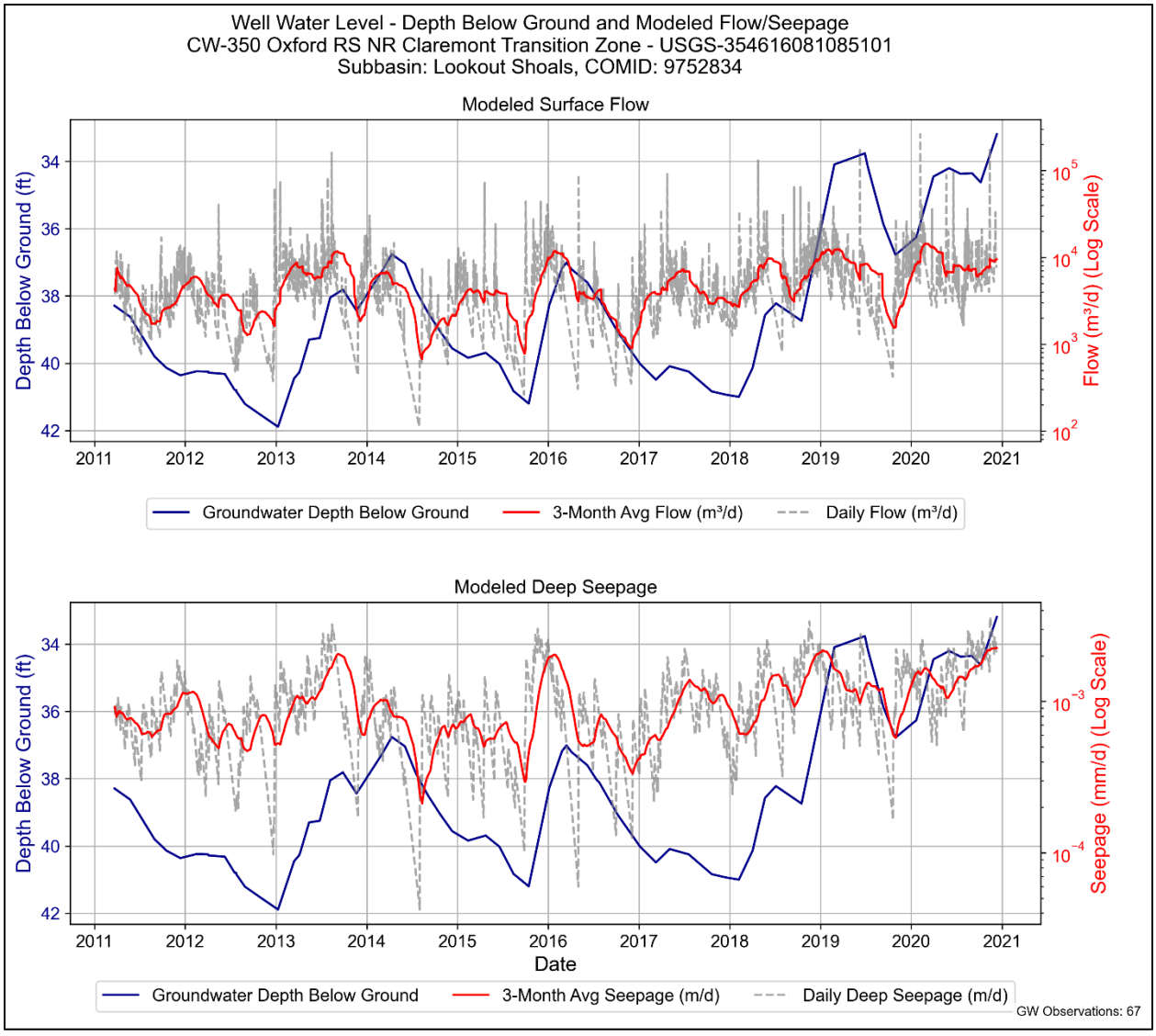


Figure 4. Monitoring Well CW-350

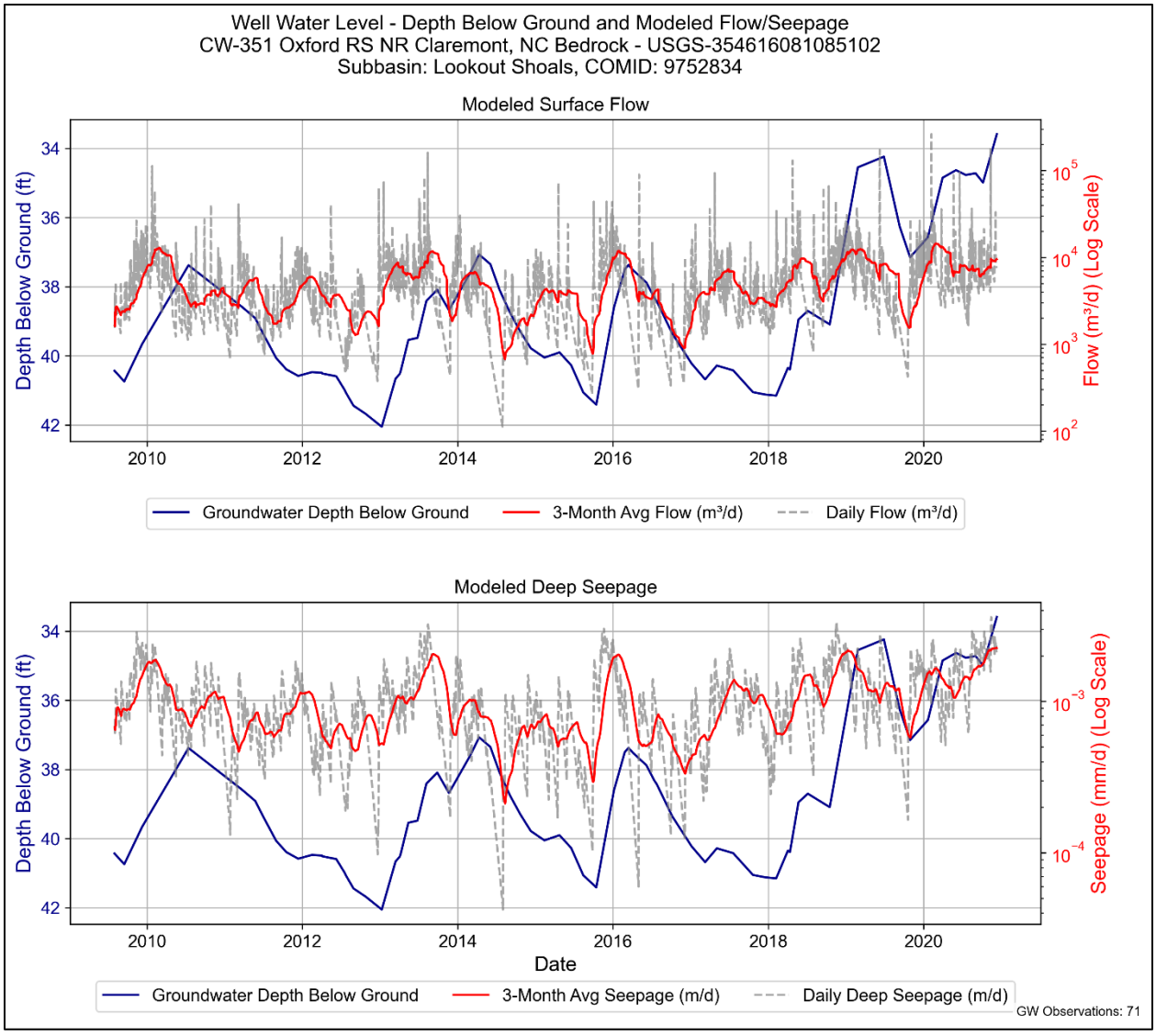


Figure 5. Monitoring Well CW-351

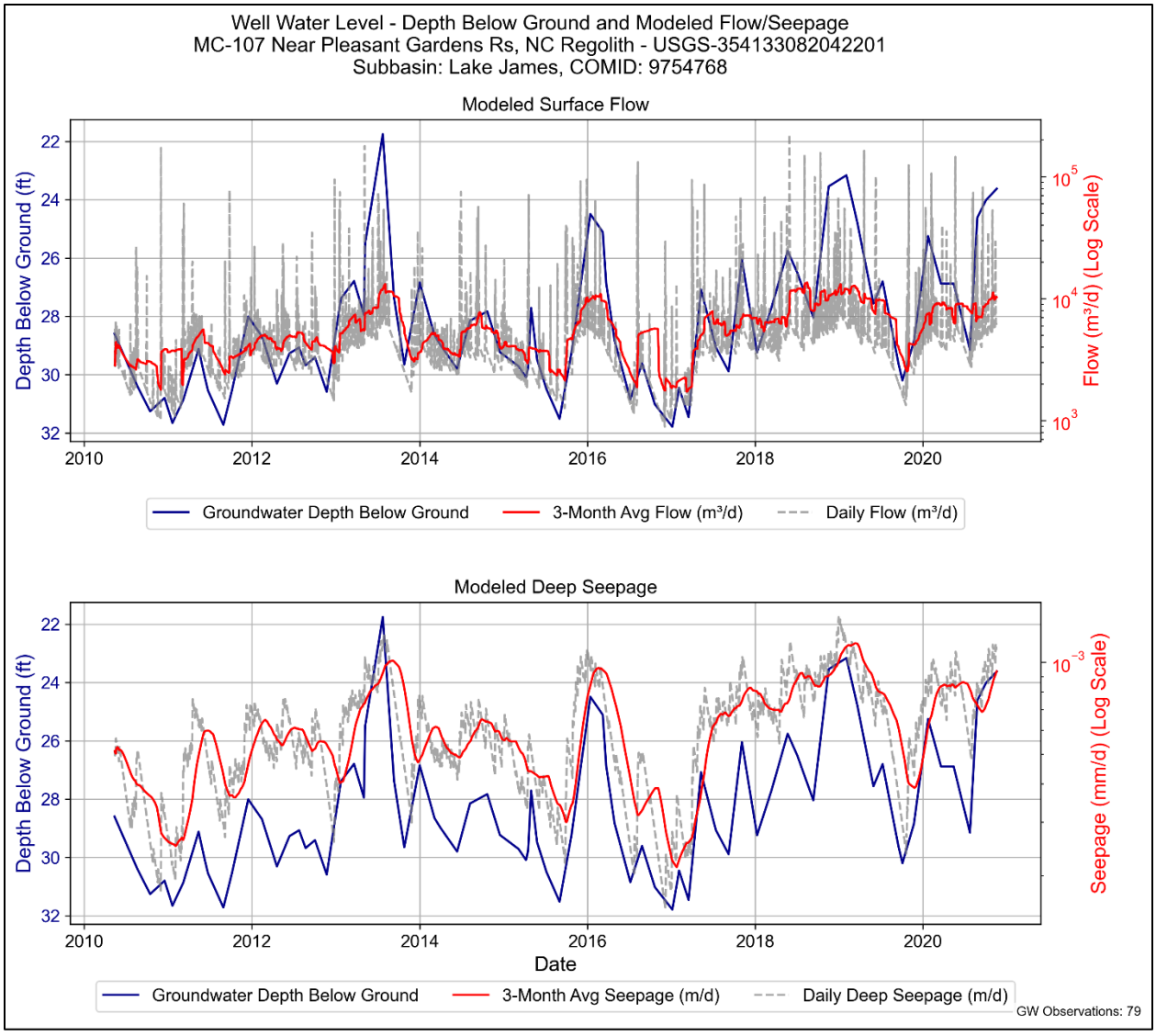


Figure 6. Monitoring Well MC-107

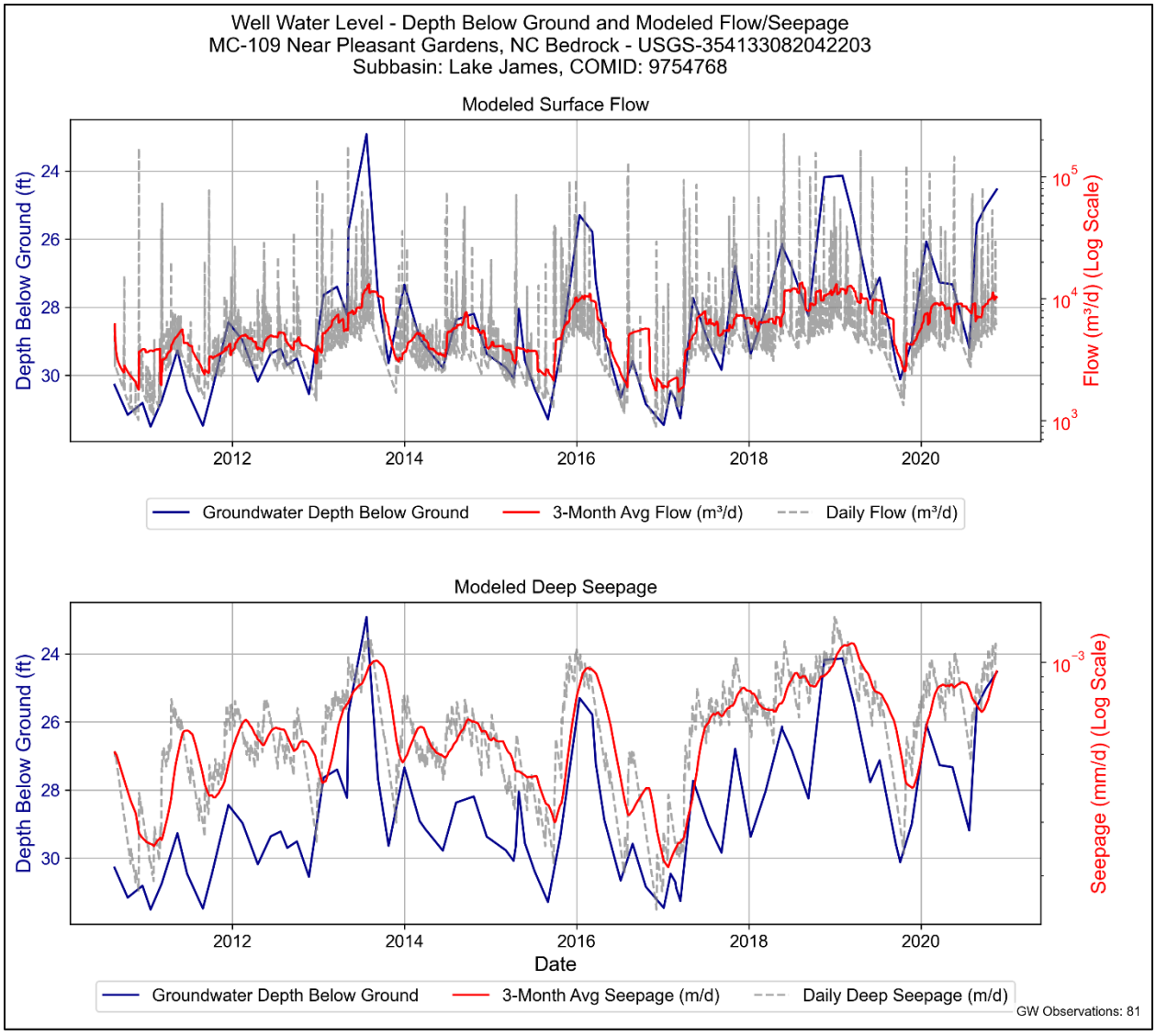


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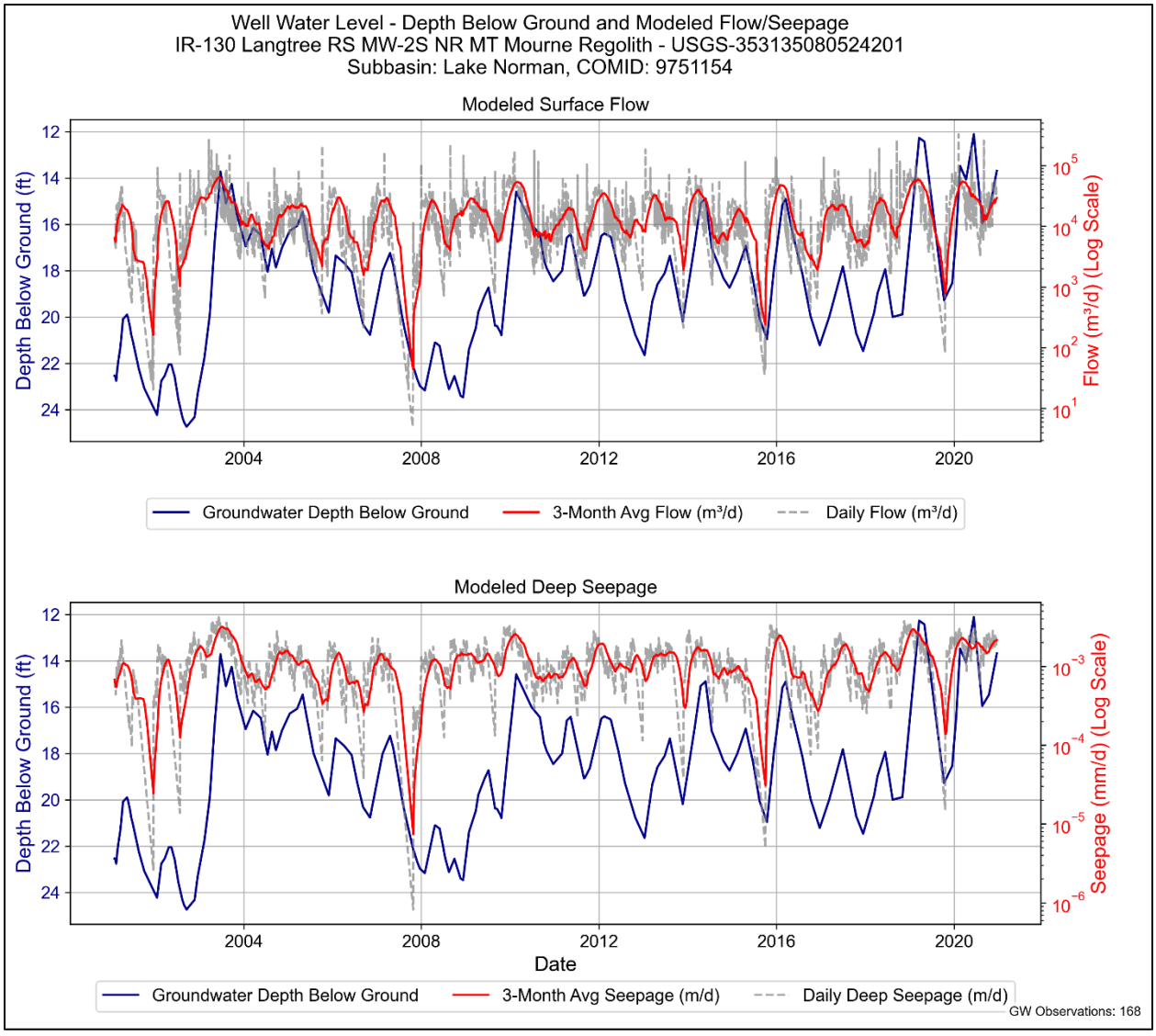


Figure 8. Monitoring Well IR-130

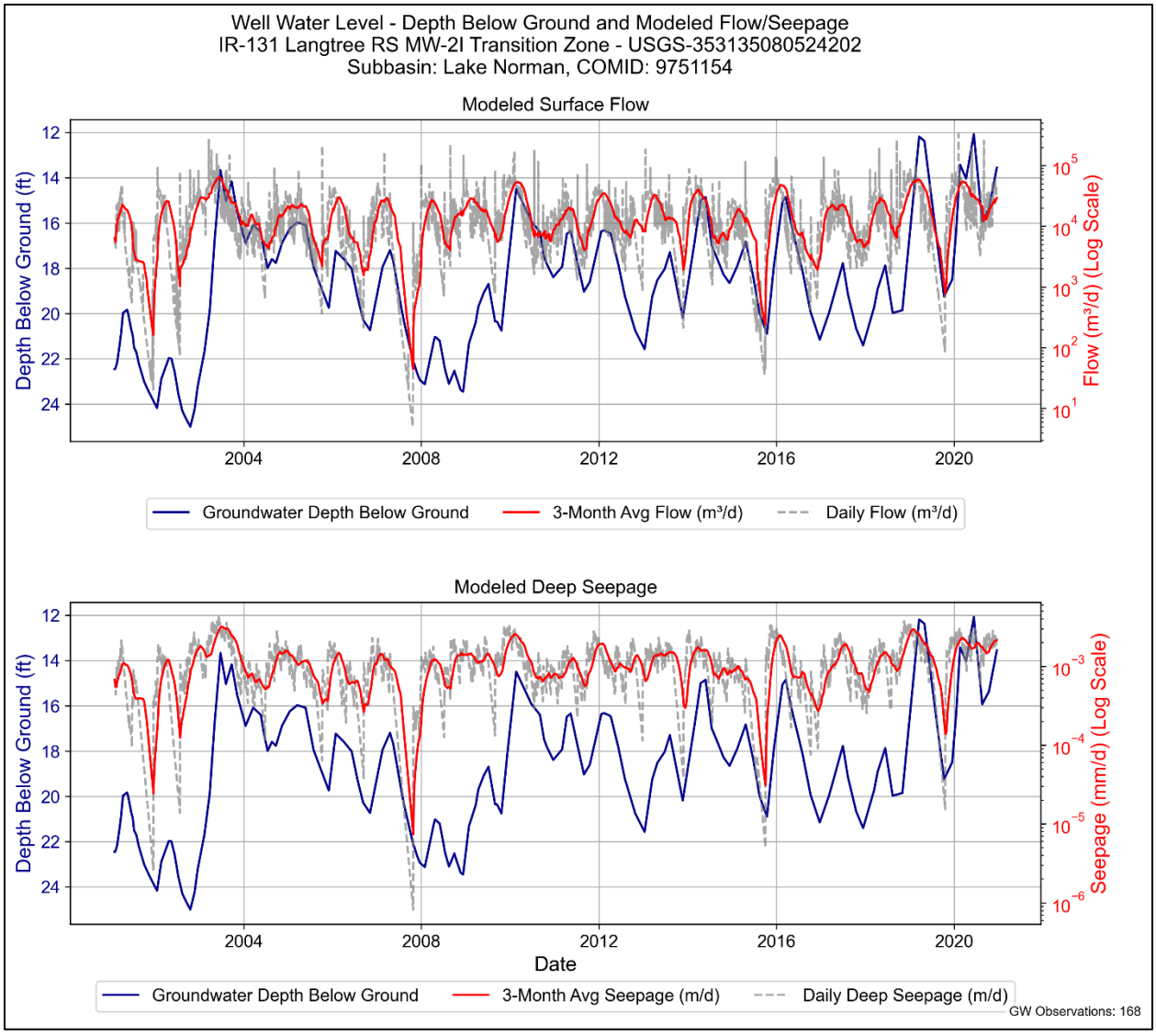


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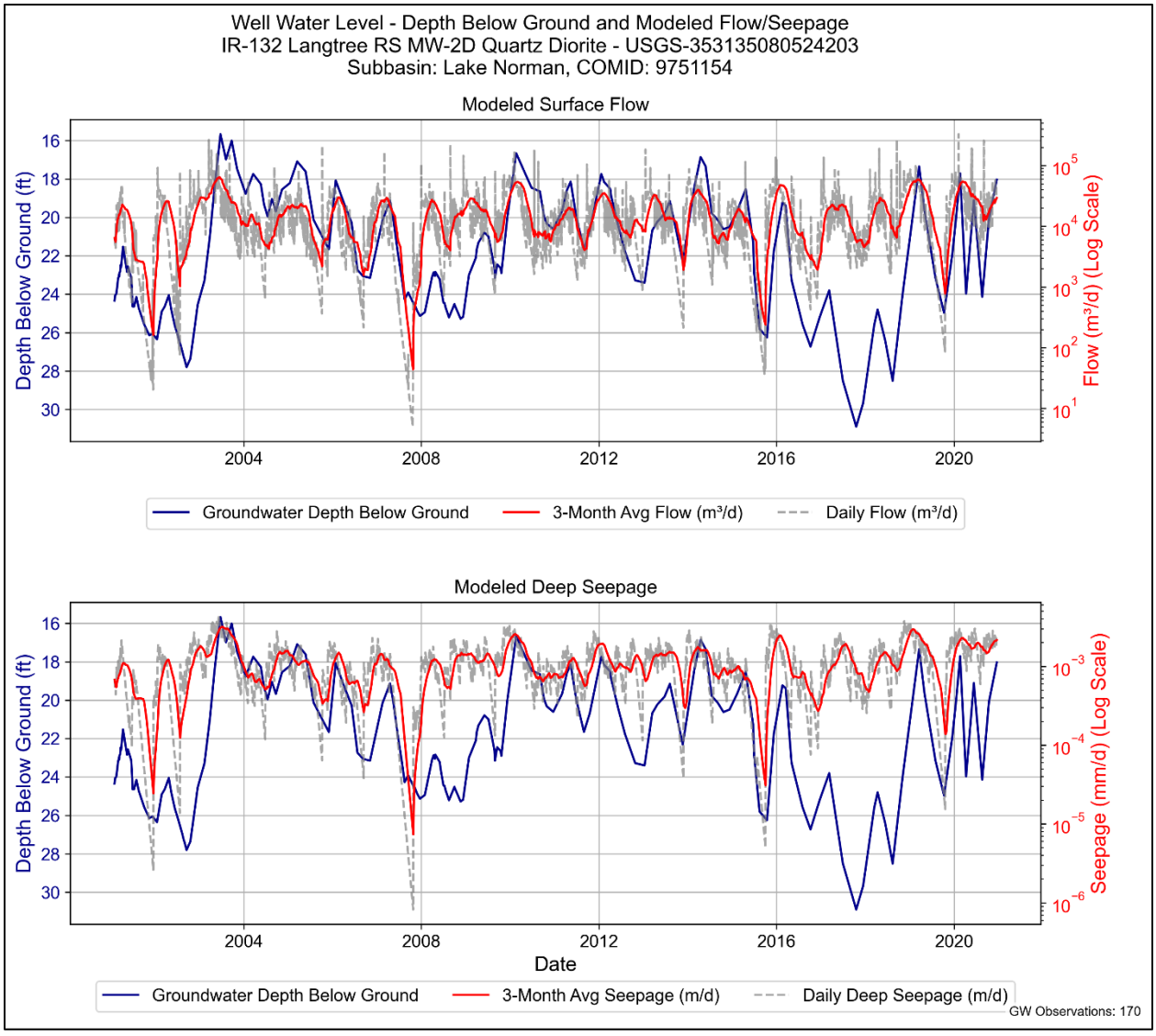


Figure 10. Monitoring Well IR-132

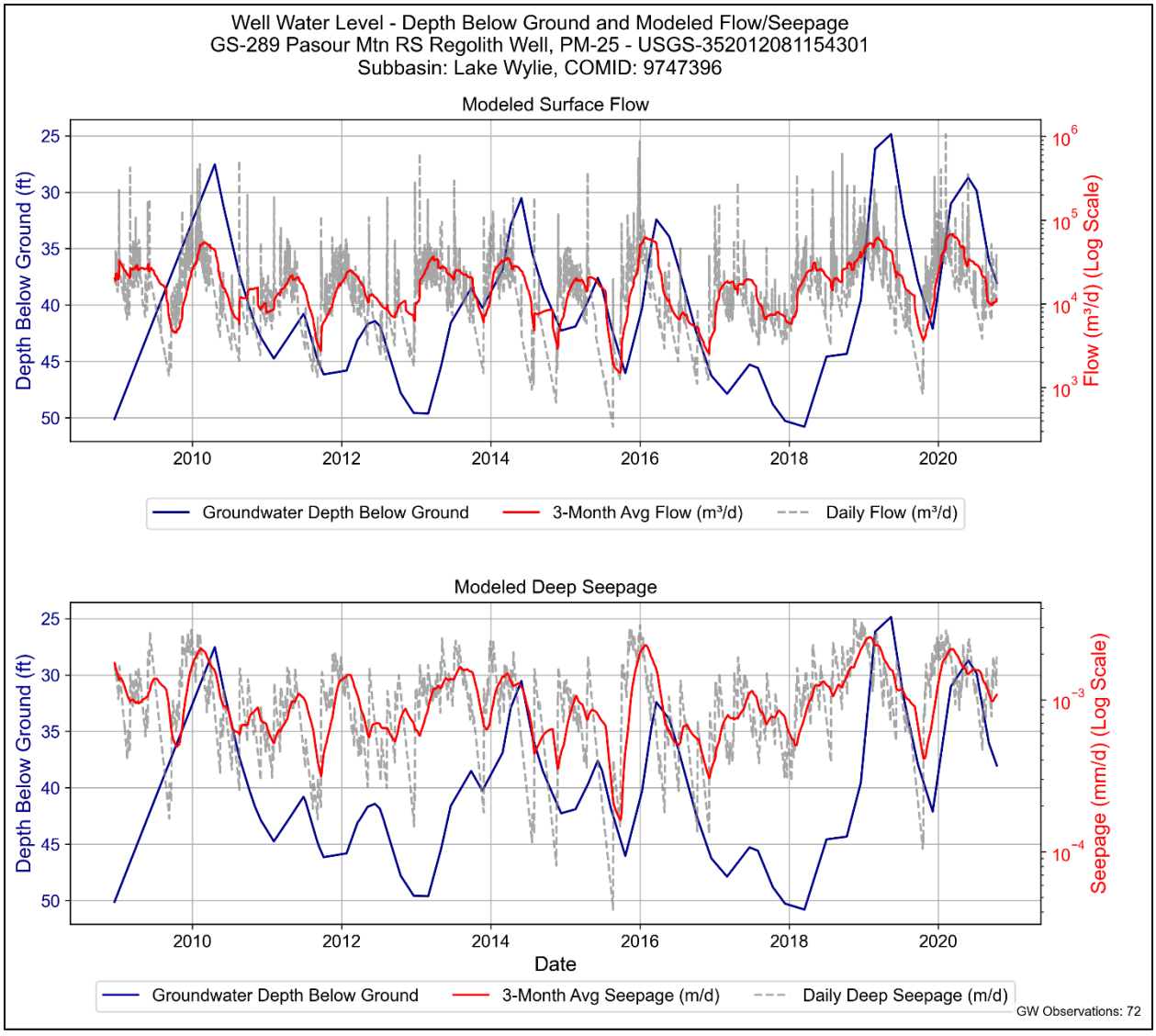


Figure 11. Monitoring Well GS-289

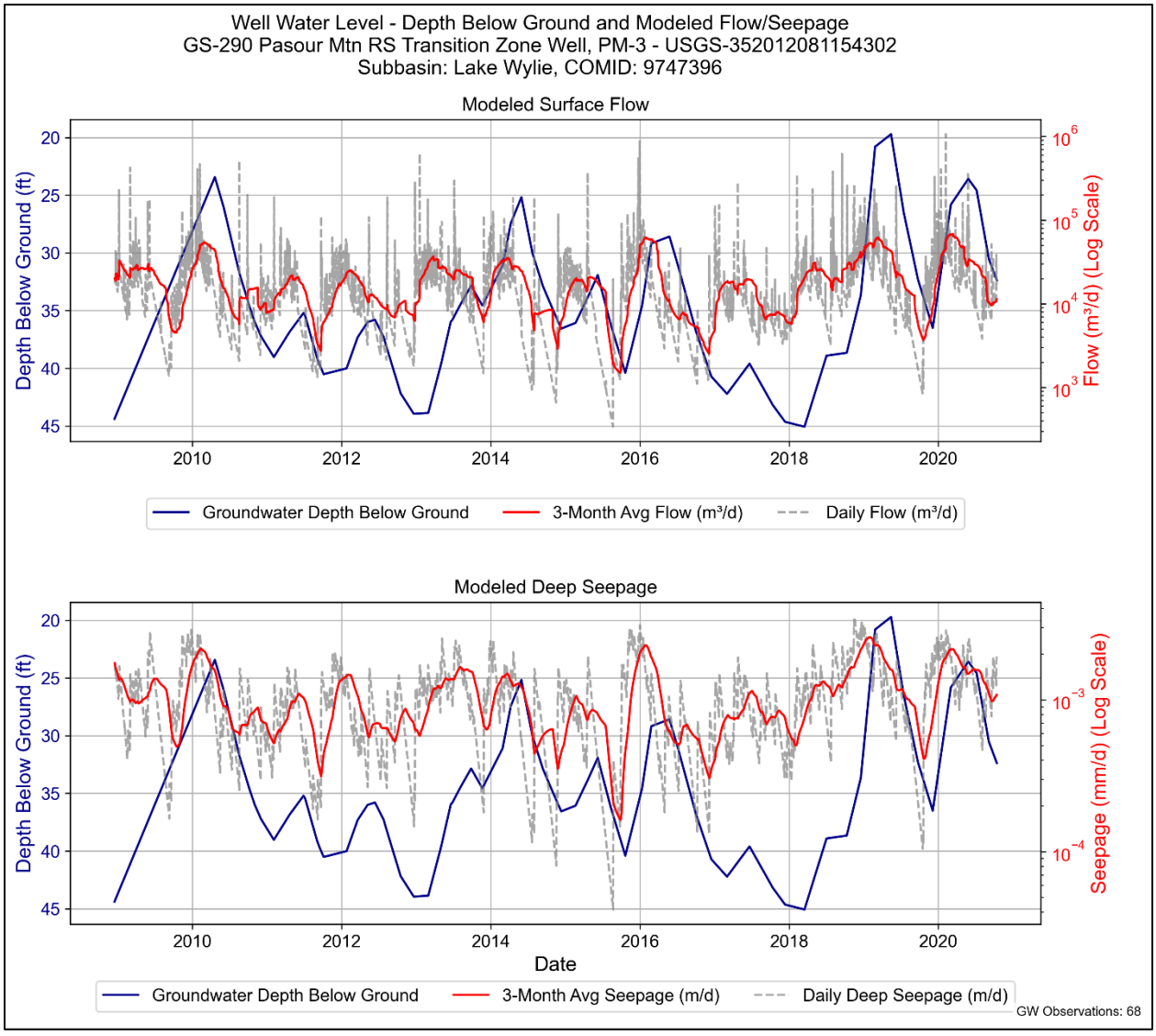


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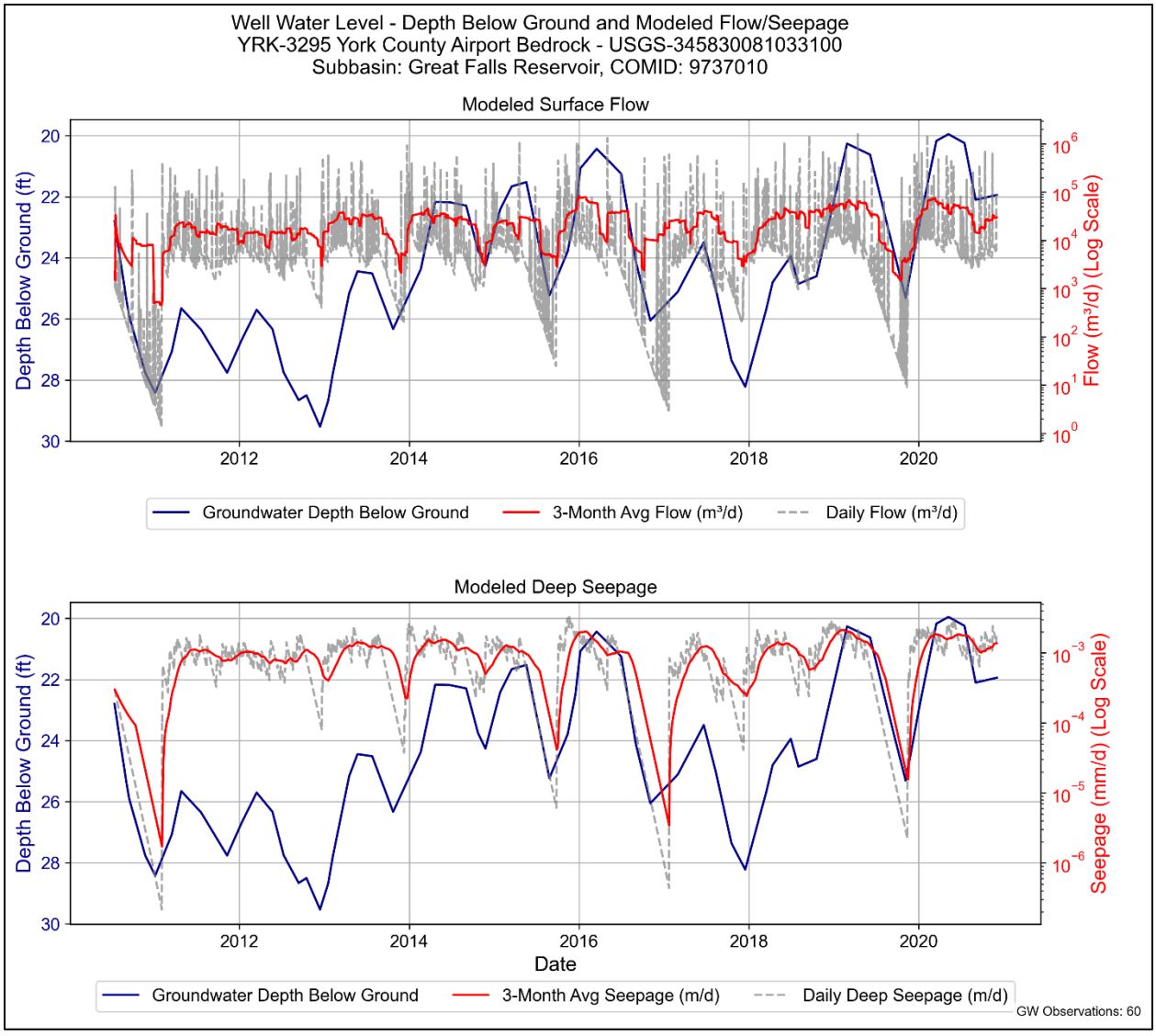


Figure 13. Monitoring Well YRK-3295

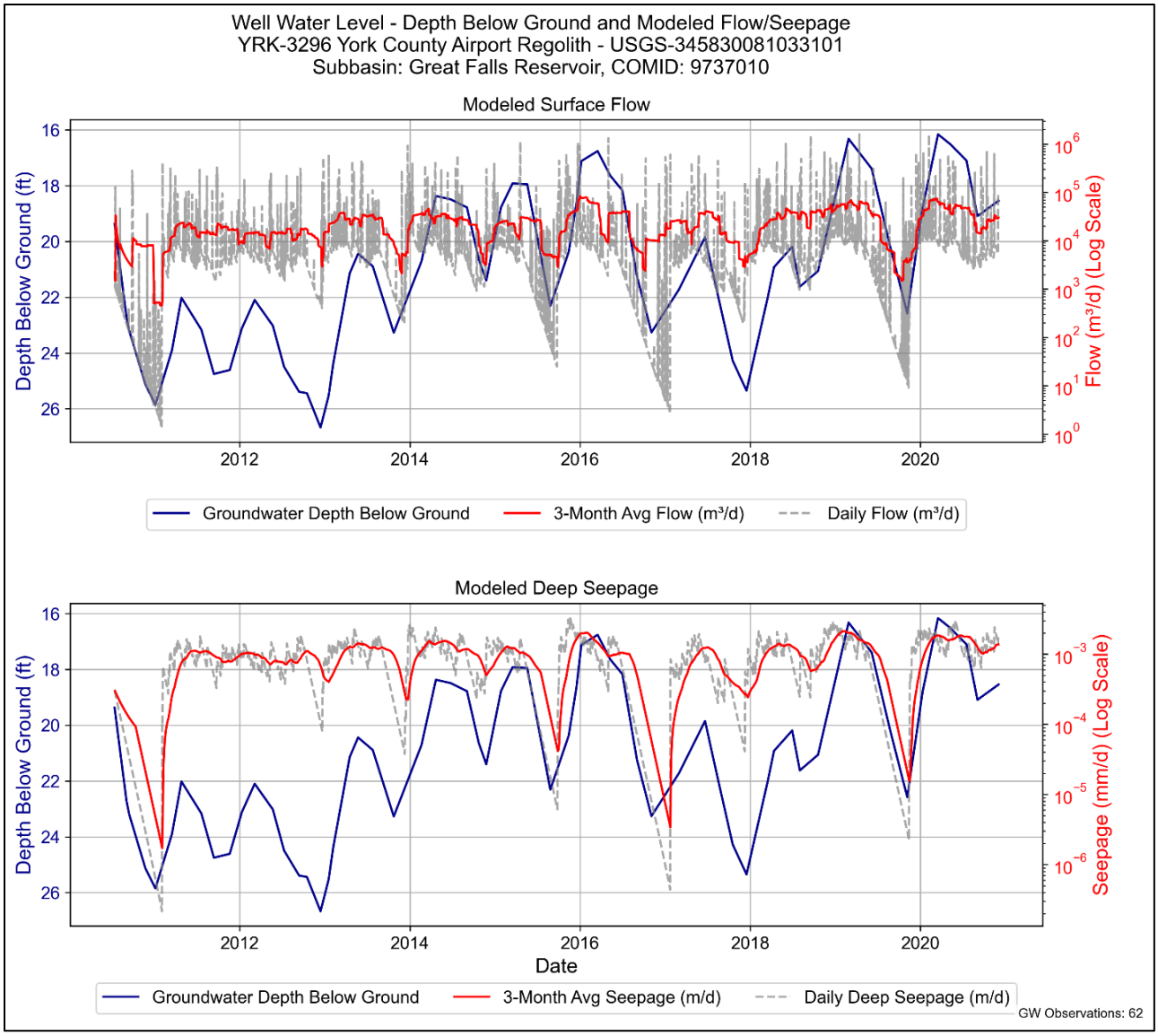


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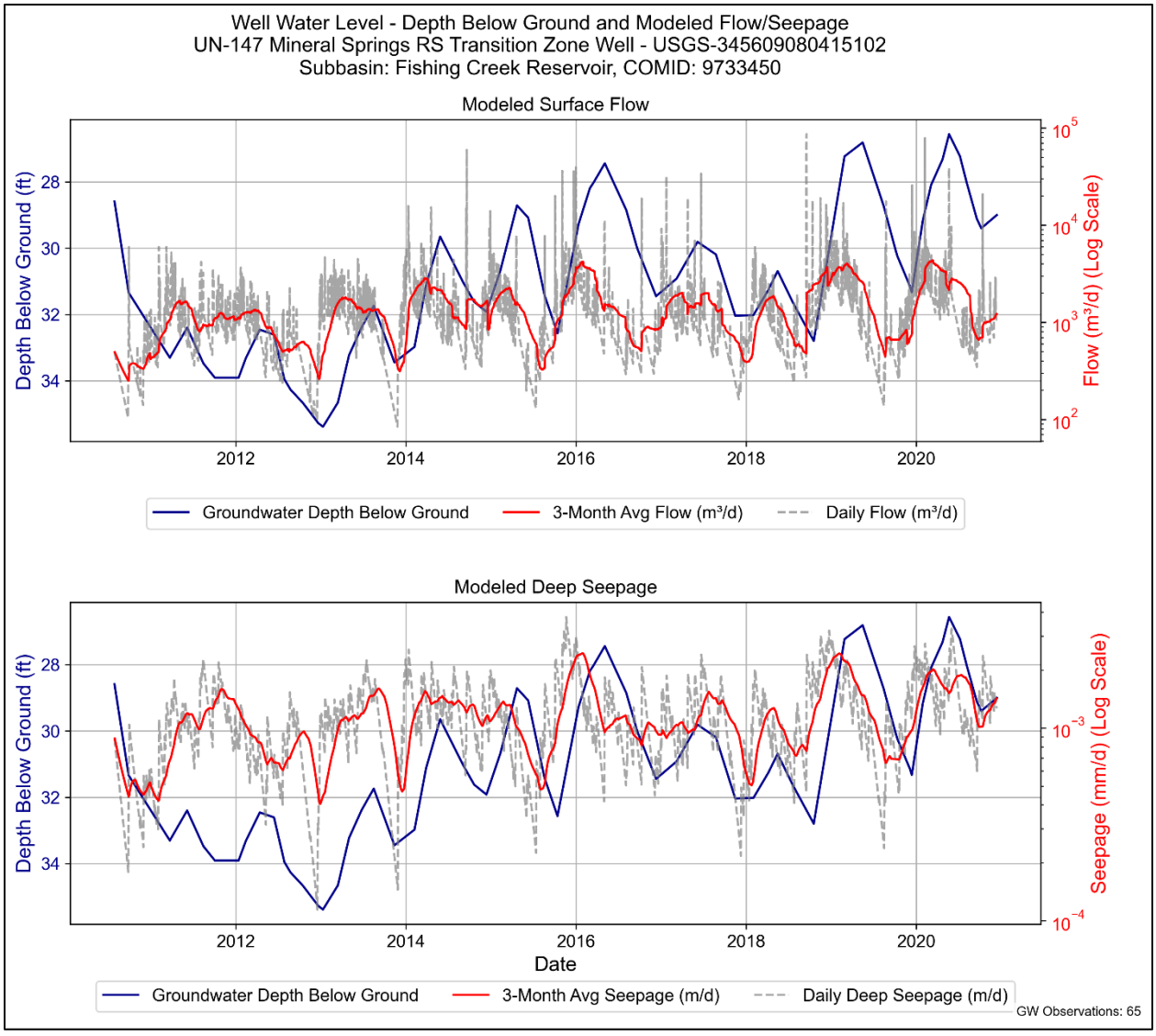


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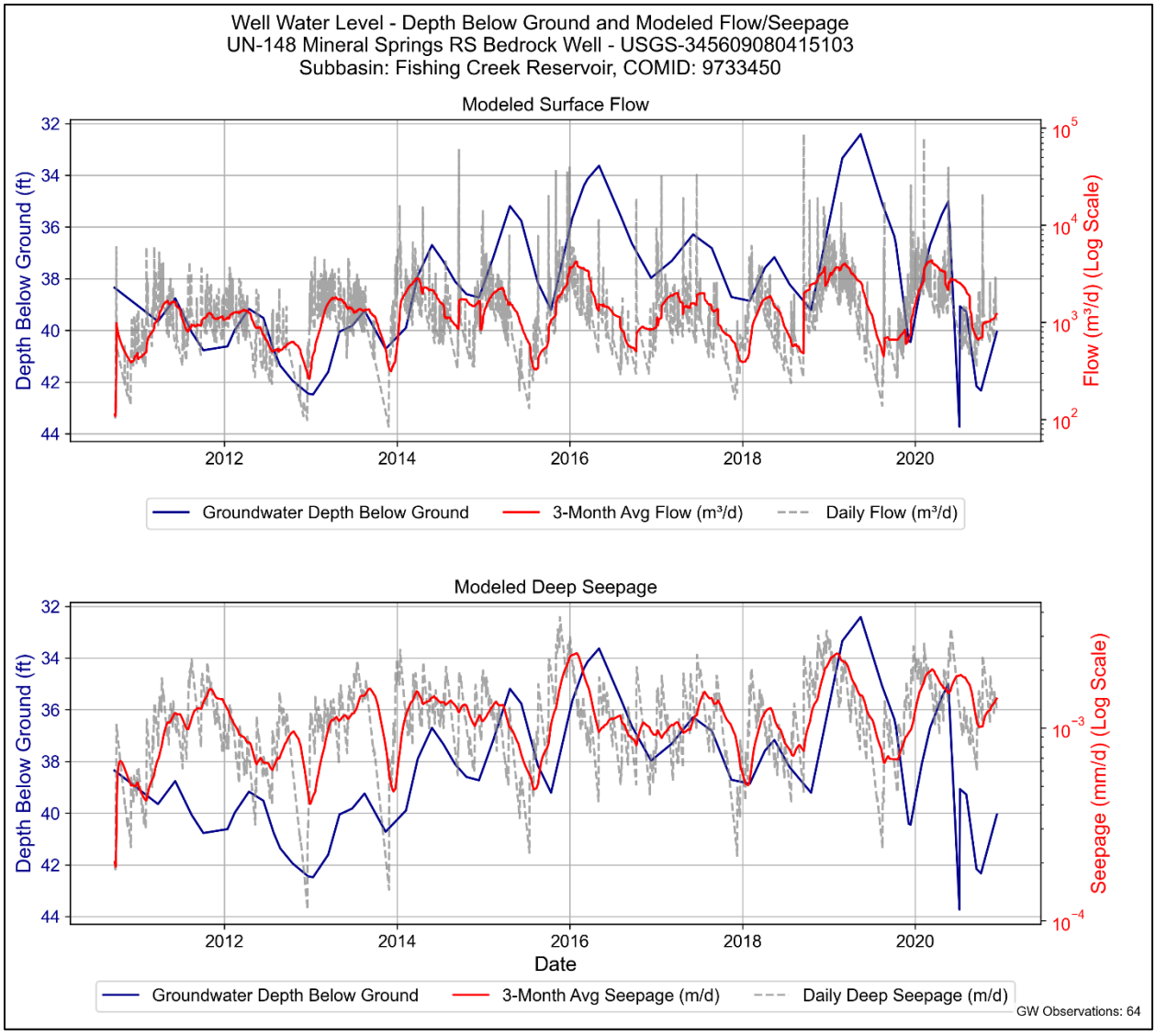


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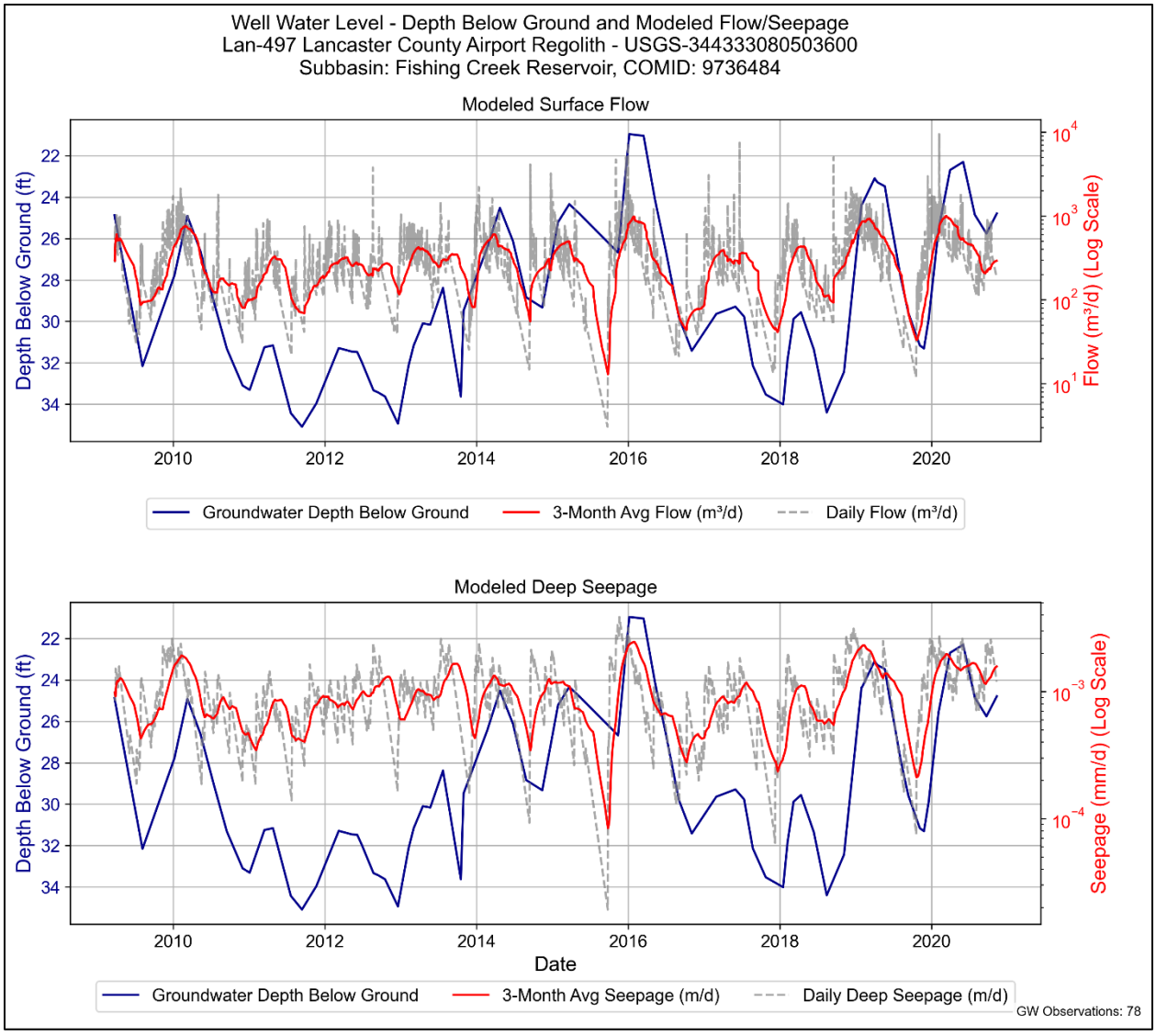


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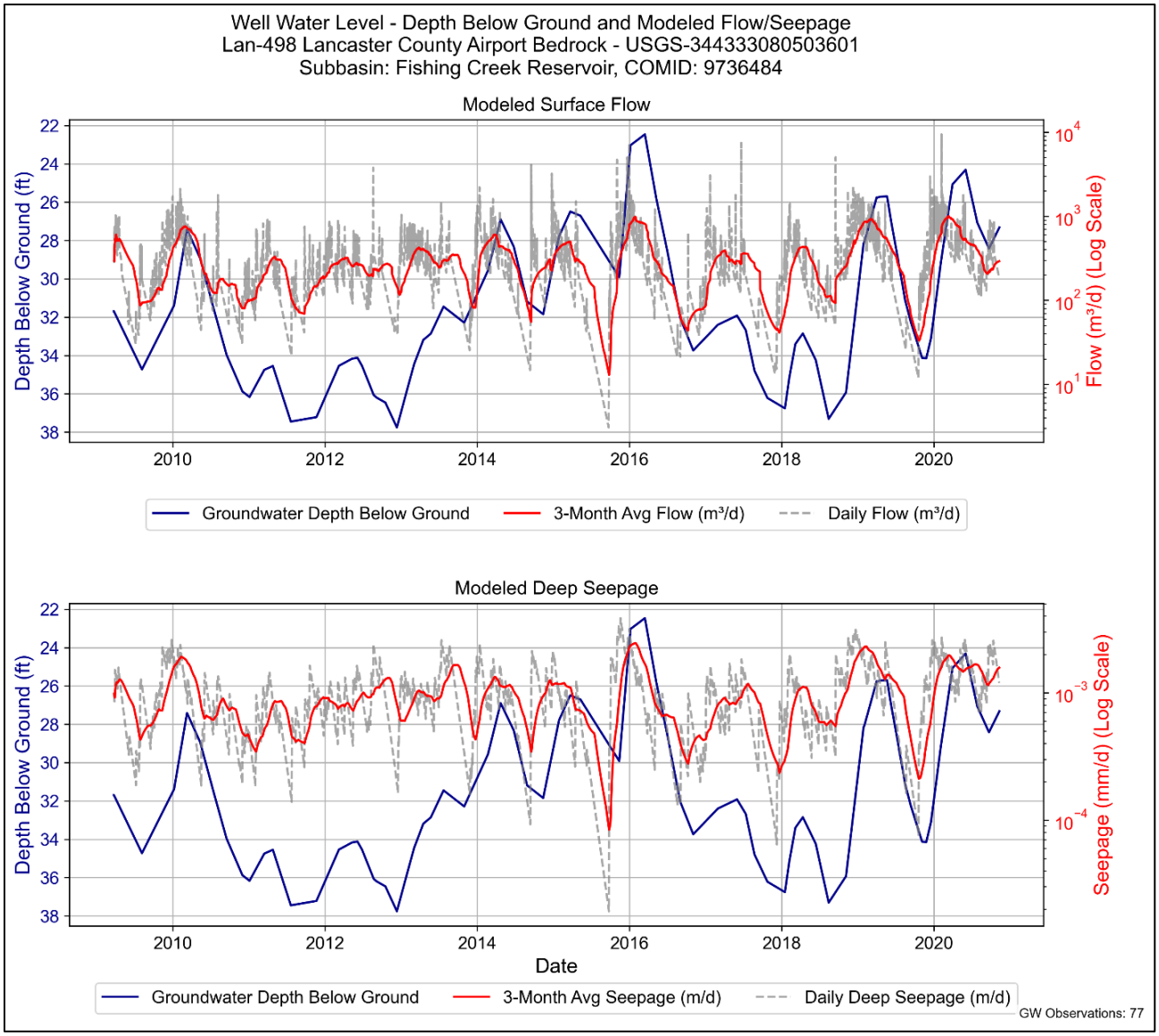


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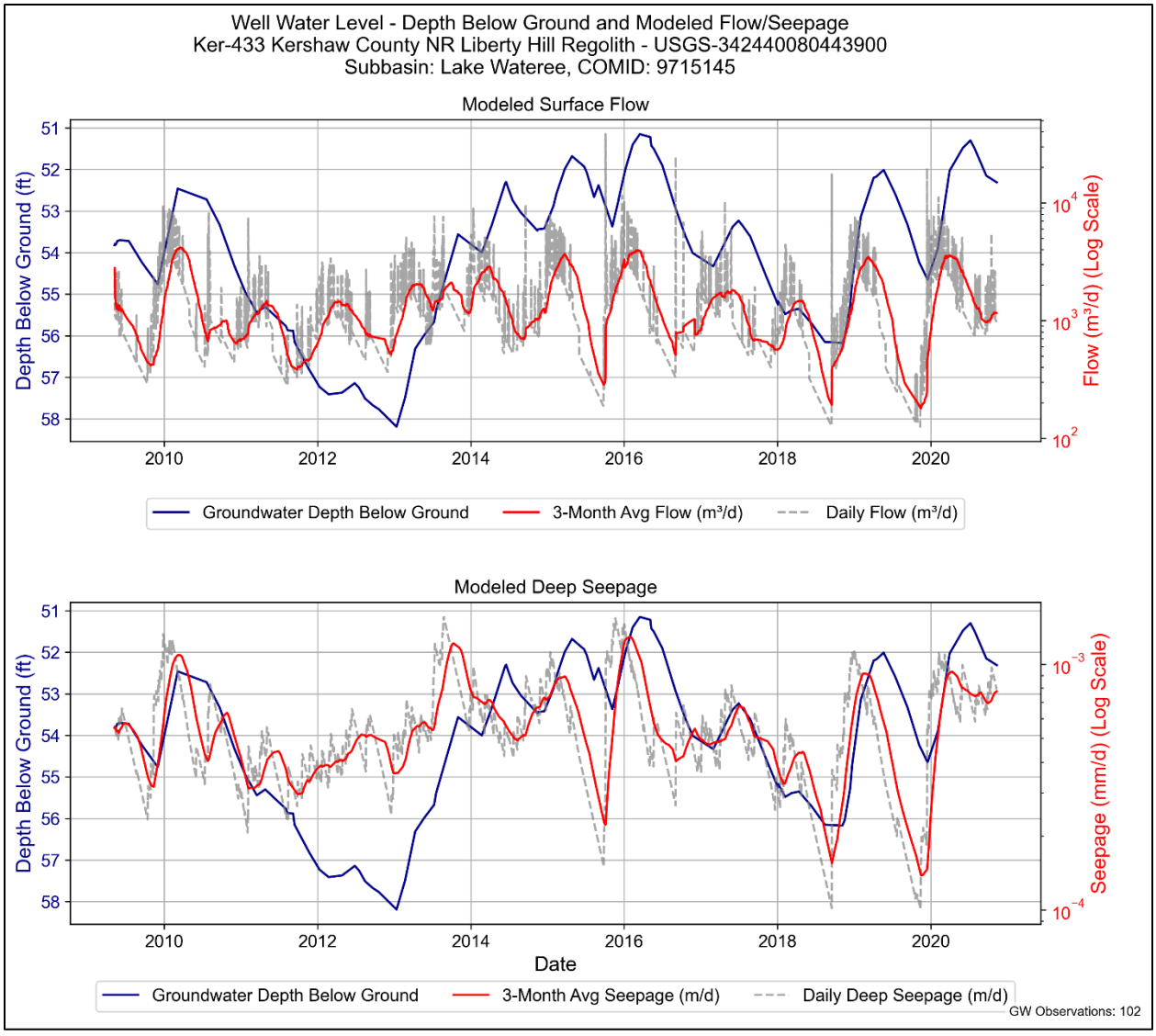


Figure 19. Monitoring Well Ker-433

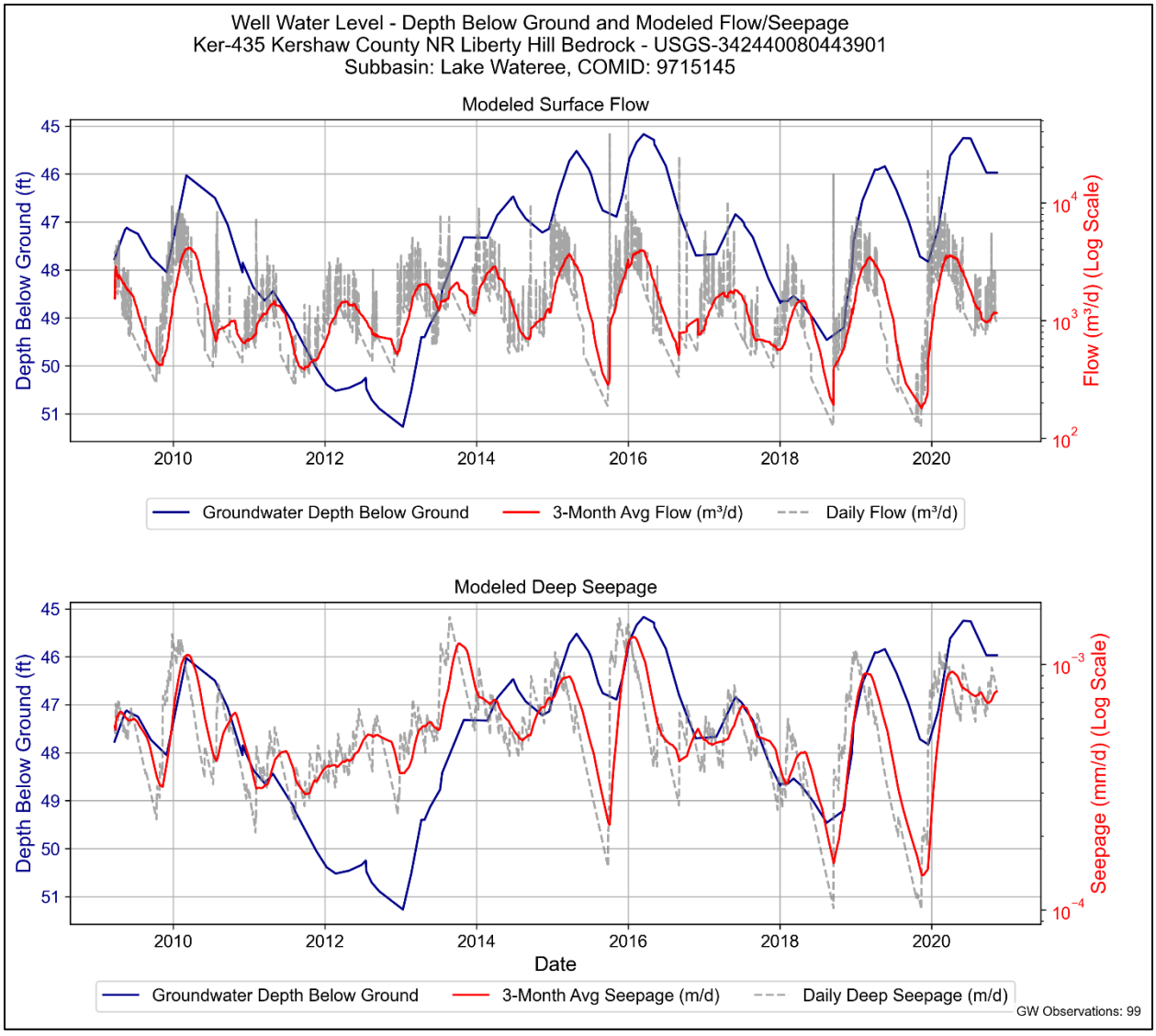


Figure 20. Monitoring Well Ker-435