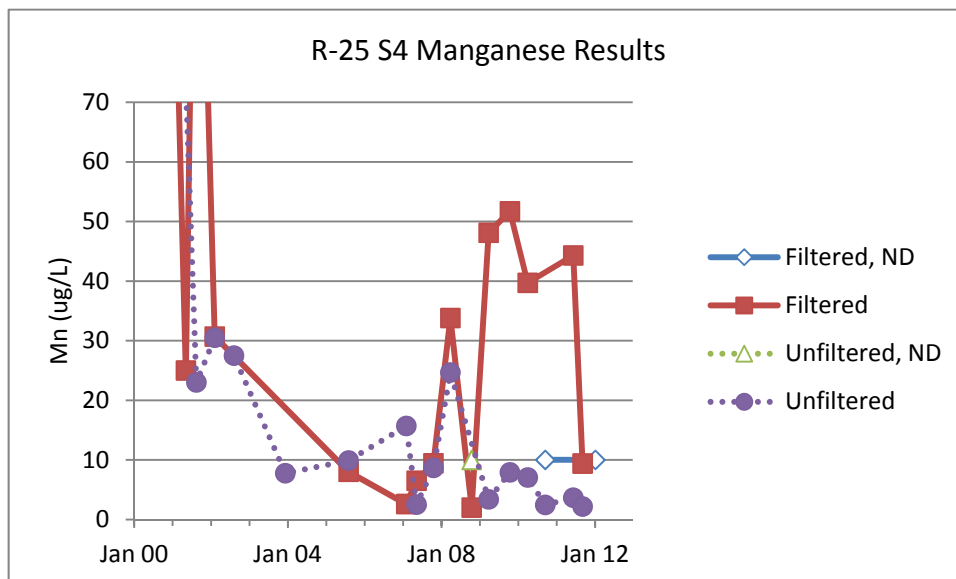
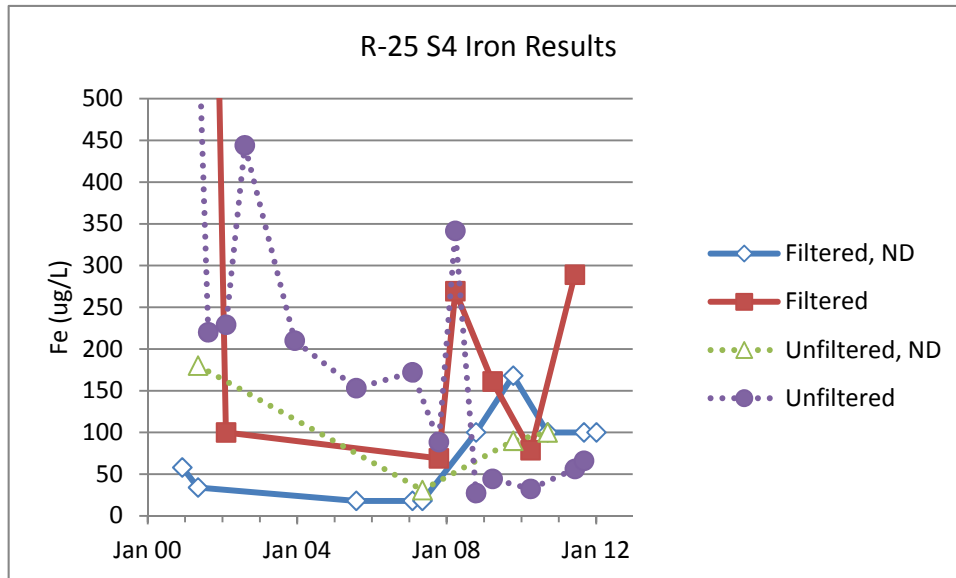
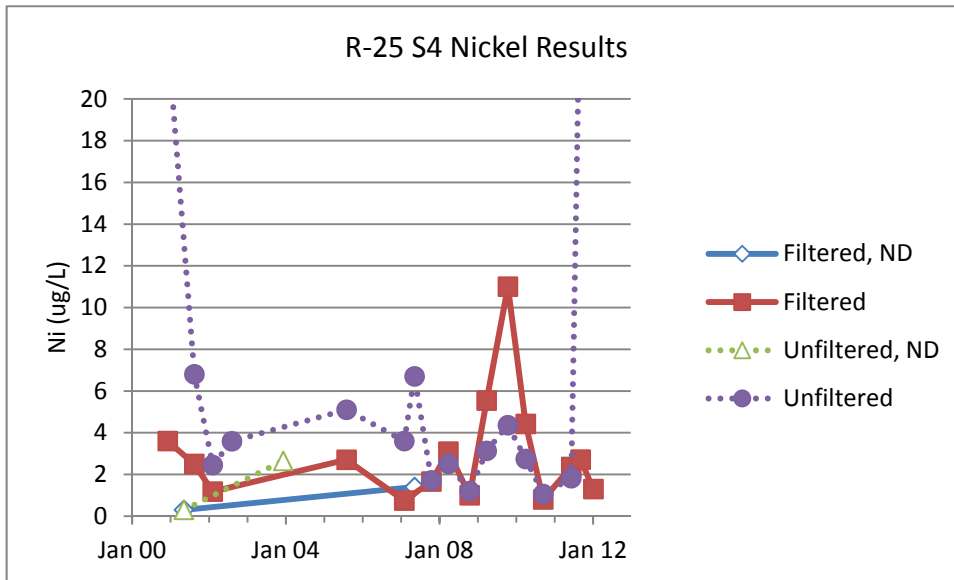


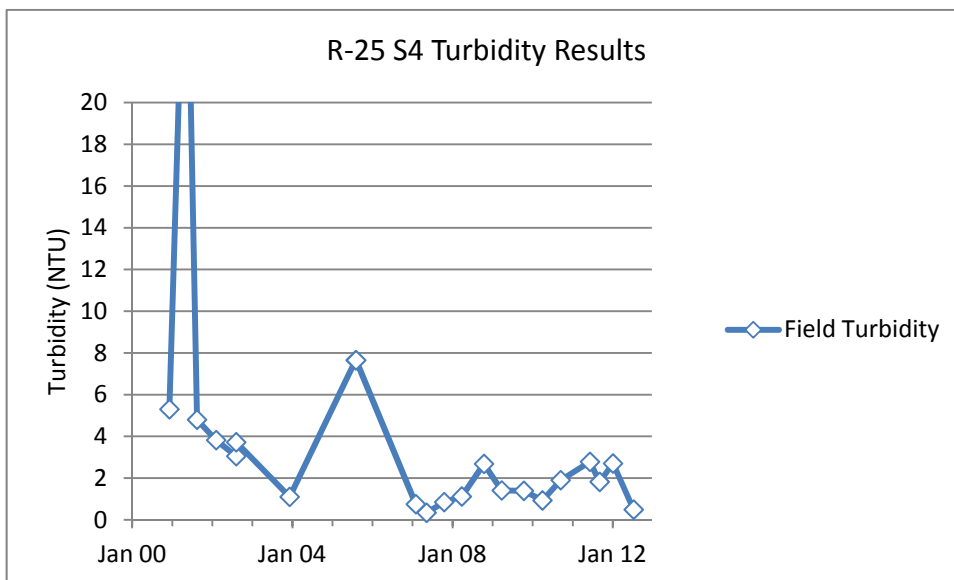
R-25 DATA QUALITY REVIEW FOR THE TECHNICAL AREA 16 WELL NETWORK EVALUATION AND RECOMMENDATIONS

Los Alamos National Laboratory (the Laboratory) looked further into the data from R-25, Screen 4, dating back to 2008. For many samples collected from R-25 S4 since 2008, the filtered iron, manganese, and nickel concentrations have been near or greater than the unfiltered concentrations (see plots below). Note that after 2007 the manganese results in filtered samples are about 40 µg/L higher than unfiltered results. The pattern of filtered results sometimes being higher than unfiltered results appears to also be generally consistent with variations in turbidity between samples.



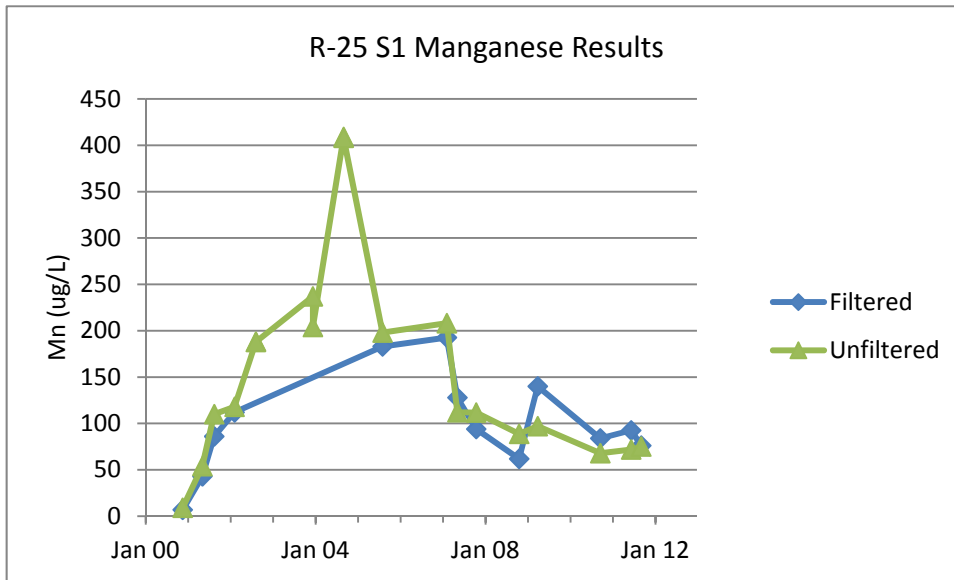


The turbidity measurements from this screen during this time have been low, around 2 nephelometric turbidity units.

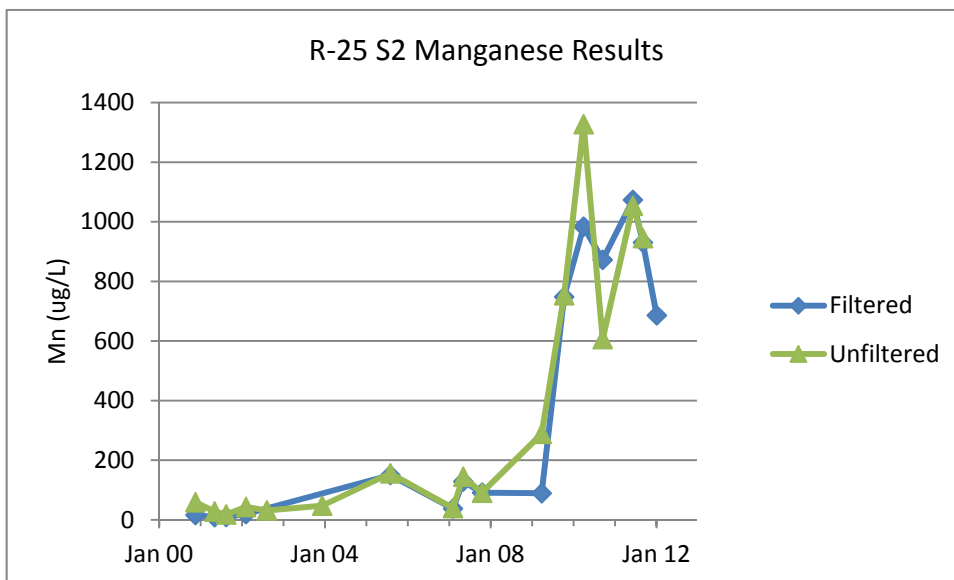


A review of field preservation procedures and analytical reports indicates that the samples were properly filtered and preserved. The samples after 2007 were analyzed at both internal and external analytical laboratories. The consistency of the pattern (for example for manganese) indicates that field preparation (e.g., filtered or not) of samples was not identified incorrectly or switched.

Other screens in R-25 show high metals concentrations found in both filtered and unfiltered samples. In screen 1 the manganese concentrations in filtered samples are equal to or exceed the unfiltered values after 2007. This suggests that a variation in concentration of these metals during sample collection, behavior of colloids during sampling and analysis could account for a difference of about 30 $\mu\text{g/L}$ between these samples. This number is similar to the concentration difference for manganese in R-25 S4 above.



In R-25 S2 the manganese concentrations increased dramatically after 2007, with filtered results equal to or greater than unfiltered concentrations in several sample events.



Because of high filtered concentrations, it is likely that metal colloids are present in samples from R-25 screens 1, 2, and 4. High concentrations of iron, manganese, nickel, and zinc are observed in samples from these screens. At times the manganese concentrations in filtered samples, for example, are higher than the unfiltered results. In one sample from R-25 S2 on September 21, 2010, the filtered concentration was 266 $\mu\text{g/L}$ higher than the 606 $\mu\text{g/L}$ unfiltered concentration. These observations suggest that differences in concentration between these samples could be due to variation of water quality during sample collection; effects of sampling, preservation, and analysis on water containing colloids.

The data review conducted for this response indicates that the samples and associated field preparation is accurately depicted in the report and in databases. The Laboratory recommends no further action associated with these data.