**REE Sorption Comparison of Three Doped Geothermal Brine Simulants with Tusaar Media**

The purpose of this study was to compare the impact of three different brines on the ability of the Tusaar media to remove a mixture of added REEs. The brines being compared are seen in the following table. Tusaar Brine 1CF is high in total dissolved solids, CSR-7 from the Great Salt Lake is moderate and the brine from Idaho National Laboratory is lower. The individual components can be seen in the following chart.

Prior to testing the brines were all doped equivalently with a mixture of 7 REEs at 2 ppm each, a total of 14 ppm. The Tusaar Media 1 -50+100 sorption of the available REEs from all three brines was over 50% during the 90 minute microcosm shaker test at 70oC. There appears to be a trend toward lower sorption as the complexity and/or the total solids content increases. From this comparison, it appears that the Tusaar Brine 1CF is the most challenging for the selected media.

