

## **Appendix C**

### **Slug Tests Conducted for the Capture Zone Evaluation**

Northgate Environmental Management performed slug tests in five newly installed monitoring wells installed per the Capture Zone Evaluation Workplan (Northgate, 2010). An objective for these wells was to evaluate the hydraulic conductivity of the UMCf in the vicinity of the IWF and AWF. Slug tests were conducted between August 26, 2010 and September 2, 2010.

Slug test data were analyzed using the Aquifer Test Professional software from Waterloo Hydrologic Inc., utilizing the Hvorslev and Bouwer and Rice methodology. A straight line was fitted to the slug test data manually, and where appropriate based upon the shape of the data, a straight line was fitted to both the early time data and the overall data for both of these analytical methodologies. Calculated hydraulic conductivities for the multiple slug tests were averaged for each well, in order to develop one hydraulic conductivity value for each well.

Concurrent with the slug tests, a barologger was installed in one well, to measure barometric pressure changes during the slug tests. The data for one of the slug tests (M-162, Test 1 Slug In) was corrected for barometric changes, and the results of this analysis indicated almost no change in the hydraulic conductivity calculated for this well with and without the corrected data, indicating that barometer pressure changes did not have an impact on the results of the slug tests. This conclusion was confirmed by more detailed inspection of the barometric pressure data, which indicated that over the duration of each slug test (approximately 120 minutes to 300 minutes), the barometric pressure changes were on the order of 0.1 foot of pressure. Based upon this conclusion, the remaining slug test data were not corrected for barometric pressure changes before being analyzed.