Project 2 CHE 4843

1. **Part I**

To determine whether the controller was reverse acting or direct acting we had to look at the equation:

+1 X -1 X -1 = +1

KVALVE  X KPROCESS X KCONTROLLER = PRODUCT

This process calls for the controller to be direct acting (negative KCONTROLLER value). To establish controller gain, the standard three step method was used. First we found that the KVALVE was ‘+1’ because the design is set up for a fail closed controller. For the KPROCESS value, we looked at the MV-CV relationship and determined that for an Increase in MV there was a decrease in CV. This relationship proves that KPROCESS holds a ‘-1’ value. Since our PRODUCT is always ‘+1’, that meant that by the equation above that KCONTROLLER had a value of ‘-1’ to make the equation true. This shows that the controller should be DIRECT ACTING.

1. **Part II**