Solution Algorithm

1. Define array of ratio of baffle height to baffle spacing from experimental results ()

2. Define array of the fraction of the maximum collision potential that could be achieved if the energy dissipation rate was uniformly distributed from experimental results ()

3. Define array of collision potential from experimental results ()

4. Define array of minor loss coefficients from experimental results ()

5. Define array of maximum energy dissipation rate over average energy dissipation rate from experimental results ()

6. Use linear interpolation of the experimental results to create functions for , and 

7. Create a function that determines the number of spaces in a flocculator channel and another function that determines the spacing between the baffles.

8. Create an iterative solution to solve for the space between the baffles since we don’t know H/S before calculating S.

9. Create a function for the collision potential

10. Create a function for the maximum energy dissipation rate.

11. Create an algorithm to find the target energy dissipation rate as a function of the collision potential.

12. Create an algorithm to find the number of spaces in each channel with the correct energy dissipation rate and cumulative collision potential.

13. Determine the height of the water at the end of the flocculator (equal to the height of the water in the sed tank).

14. Determine the maximum baffle spacing by using the minimum H/S ratio

15. Determine the width of the floc channel as the maximum of the spacing found from step 8 and the width of the floc channel as determined by a human being able to walk through it.

16. Determine the minimum floc baffle spacing and the minimum and maximum number of floc spaces.

17. Calculate the maximum energy dissipation rate given the range of possible baffle spacings and the total collision potential for a channel full of baffles of that spacing.

18. Calculate the number of spaces in each channel, the number of channels, and the number of baffles in each channel.

19. Calculate the actual baffle spacing and verify that the channels are the correct length.19