

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The model was used to predict the corrosion rate in the pH range of 9.8 to 11.55 for both outlet feeder pipes in the plant and test. The following conclusions can be made

- Both the dissolution rate constant and the free energy of activation affected corrosion of a carbon steel.
- The relation between the dissolution rate constant and pH has been represented by a sixth-order polynomial.
- The values of dissolution rate constant and free energy of activation were independent of geometry.

5.2 Recommendations for the Future Work

- The relation between the dissolution rate constant, pH and temperature needs further study.
- The relation between the free energy of activation and pH needs further study.
- The electrochemical part of the model is complicated and requires further consideration.
- A simpler model based on chemical reaction and on mass transfer has been postulated for further study.
- In this model $\text{Fe}(\text{OH})_2$ is assumed to be product of corrosion because it is the predominant species. Different species can exist in the primary coolant depending on pH.