CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

From simulation of ESP, it is can be conclude that the field near the central discharge wire in case of one-discharge wire ESP is higher than that for ESP with multi-wires due to the shielding effect imposed on the central wire due to the other wires. The calculated electric field along the ESP axis decreases away from the discharge wire in agreement with previous calculation. In all ESP configurations, the electrostatic field around the outer wire is higher than that around the other (inner) wires. This is because the inside wires are shielded by the outer wires.

Collection efficiency of the ESP is a function of applied voltage. Higher efficiencies can be achieved if applied voltage in increased. With a confidence level of 95%, it can be said that the collection efficiency of the system corresponding to applied voltage, will lie within a confidence interval of 4.1%. In order to achieve a collection efficiency of 99.9% the voltage required is 52kv or higher. Variation in temperature have little impact on collection efficiency approximate variation in efficiency in rang of (0.3% -0.4%). the distance between plates proportioned inversely with efficiency.

5.2 Recommendations

To check the effectiveness of dry ESP as fly ash collector, simulation was done using MATLAB code. In order to achieve the objective following guideline is suggested:

- It is important to check the size distribution of fly ash particles coming out of ESP to see whether agglomeration occurred and to what degree.

- from the statistical analysis , it war found that 99.9% efficiency for fly ash particulate can be achieved at voltage value greater than 52 kv. Hence, it is recommended to conduct at least one test at 52 kv for capturing fly ash particulates. However, with the present set up, the maximum achievable stable voltage is only 33 kv .The voltage value of 52 KV could be achieved by improving design conditions.