design from its expected operational conditions are noted.This depends on the contracted company but after consulting, a good average was found to be $4500 per condenser.

6. Recommendations and conclusion

As recommendations, there was need to improve on the reduction of ball losses, as well as to improve ball distribution on tubes. Further development of ball material with greater resistance to wear could be developed. Development of advanced system to control and monitor ball motion in the tubes such that no tube is missed needs to be investigated. In systems of low turbulence, the effect of adding an agitating component to improve ball distribution within flow has to be researched on. Although the design of a condenser rubber ball cleaning system which saves for the cleaning of the condenser tubes whilst in operation was done. The design paid consideration to cases of possible tube obstructions, missed tubes on cleaning and lessening of ball wear. The introduction of an online condenser cleaning system at the power station will be impact on the downtimes due to unexpected and scheduled shutdown are reduced during periodical cleaning thus yearly expenses due to downtime on condenser cleaning slashed by $475 200. Major improvement of the existing system to meet set objectives were on the addition of the magnetic water treatment to and alter the super molecules in water such the calcium cation precipitate so if a specific tube is missed in one cycle, it will be in the next cycle the while foulant will not be stubborn on removal. The number of balls per cycle were increased such that higher a probabilities that any tube is cleaned after multiple cycles. Reduced ball size was introduced to cover for thermal expansion on the balls when exposed to high temperatures.

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Biography

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