

condition). Repairs or corrective maintenance actions are often repeated for optimal results.

Based on Pareto charts and RAM analysis, Pump performance should be prioritized on critical components, i.e., packing seals or grand packing. Upgrading the packing seal material with a wide pH range can be conducted to improve pump performance. The prediction of the performance results achieved by upgrading is 95.6725%. As a result, the finding of this study on the cooling tower will be highly valuable to the cooling system. To achieve production targets, both departments of operation and maintenance should focus major attention and action on the most critical equipment.

IV. CONCLUSION

The result of the identification of the critical component or parts of the cooling tower shows that the most important equipment, according to RAM analysis, is the 2205-JMA and 2205-JMB (make-up pump) subsystem. Those pumps are critical to the overall performance of the subsystem. The most important equipment, namely the make-up pumps 2205-JMA and 2205-JMB, should be prioritized to improve system efficiency.

Many pump failures are caused by a problem with the seal or gland packing (2205-JMA and 2205-JMB). Seal leaks may be considered a safety issue in some plants when working with hazardous fluids (e.g., liquid ammonia, toxic gas, or hot fluid). In evaluating the system performance, pump performance should be prioritized on essential components, such as packing seals or grand packing. Pump performance can be improved by upgrading the packing seal material to one that has a broad pH range. The performance results obtained by upgrading are predicted to be 95.6725 percent.

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