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Application of Reliability Centered Maintenance (RCM) Considering Dependent Failures

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Abstract: Nowadays the industry applies maintenance methodologies in order to increase availability and reduce costs. In this way the RCM (Reliability Centered Maintenance) could be used due to its characteristics. The RCM methodology is based on equipment reliability, it will be assumed that all failure modes are independent. However in some cases this supposition does not exist. That is why, it is necessary to consider failures modes in a joint manner and include these estimations in the RCM methodology in order to improve the operative performance, reduce maintenance costs and improve work order. This work studies the effect of considering dependence between failure modes for the reliability assessment and maintenance activities program of power distribution station. The Results, considering dependence between failure modes, have shown 69 % of savings in the annual maintenance cost. That is a direct benefit for the company.

Keywords: Reliability Centered Maintenance, Copulas Theory, Maintenance Based on Time