ASPECTS OF MAINTENANCE STRATEGY SELECTION PROCESS

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Abstract: Life-cycle maintenance has been an important factor in modern industrial companies competitiveness and has been attracting lately more attention in industry. The objective of maintenance is to reduce the number of unexpected breakdowns due to failures, which may be catastrophic and may occur huge loss. Many industrial companies have shifted their maintenance programs to condition-based maintenance (CBM), which, if correctly and effectively implemented, can significantly reduce the maintenance cost.

3. CONCLUSIONS

The nine steps maintenance selection process contains many aspects of general applicability to all production facilities. A company can customize it, or not completing all of the nine steps thoroughly. The scheme can be flexibly adapted to a particular situation in a company at convenience.

Since market conditions in process industry can change quickly, some A/E may be technically outdated within only a few years, or production facilities may be constantly being modified and improved. Therefore, fixing the maintenance strategy for a long time would probably not be a good idea, it would be better to periodically review and adapt if judged necessary.

Often, decisions must be made based on incomplete, uncertain or qualitative information only. If this is the case, exact formal mathematical models are generally not very helpful in the decision process. Instead, a systematically structured, team-based, interdisciplinary approach — using a procedure as outlined in the nine step maintenance selection process — may be more feasible. Disadvantageous is the rather big demand with respect to resources, time, and costs when such an approach is followed.

Since efforts to improve production efficiency are a continuous ongoing process in diverse areas, in practice it is hard to separate influence of new maintenance strategies from other contributing factors and to quantify resulting benefit. The data to make meaningful quantitative statements are often not (yet) transparently available, and the effects of changes may only be roughly estimated or seen over longer time intervals. Nevertheless, such decision aids can unify the selection process in a company, and allowing to profit from experiences across units. Broader analysis could be applied to particularly critical installations, and resulting conclusions could be drawn which may also be valuable to other related or neighboring plants.

The nine step selection procedure is clearly geared towards maintenance. It offers a framework, in which, classical methods as FMEA or HAZOP can be included or more advanced modeling and simulation can be used.

REFERENCES

[1] Chan, G.K., Asgarpoor, S., *Optimum maintenance policy with Markov process,* Electronic Power Systems Research, vol.76, pp.452-456, 2006.
[2] Fabricius, S., Badreddin, E., Kroger, W., *Migration to advanced maintenance and monitoring techniques in the process industry*, Condition Monitoring and Diagnostic Engineering Management (COMADEM), Proceedings of the 14th International Congress, Manchester, UK, 2001.
[3] Fabricius, S., *Modeling and Simulation for Plant Performability Assessment with Application to Maintenance in the Process Industry*, Swiss Federal Institute Of Technology, Zurich, 2003