

ABSTRACT

PT. XYZ is one of the cement producers in Indonesia. There are totally 9 plants which located at West Java. Object of observation in this final project is gear reducer finish mil 4A. Inspection is needed to monitor vibration so that the value of vibration can be maintained to not surpass the standard value.

Gear reducer maintenance costs a big amount of money due to the loss of benefit. Thus, a management policy on arrangement the interval of schedule is has to be done to optimize inspection activity.

During this time, inspection is scheduled to one per two months periodically. Is the inspection schedule effective? Analysis is needed in order to give an effective proposal supported by acceptable reason and scientific.

It has been determined that the maximum value of vibration is 11 mm/s with maximum PoF 0.001 %. These two conditions show that the gear reducer is having a failure. Therefore these information are essential.

RBI method is used because of the risk factor consideration. This risk control is done by controlling the maximum PoF. Weibull Distribution is used to plot vibration data. Output of this plotting are parameter beta and eta. Parameter beta shows the failure rate and parameter eta shows the average rate of failure which has to be controlled at lowest limit which is called critical eta.

Intersection between the critical value with eta extrapolation is the end of useful life and also shows the maximum vibration and maximum PoF. When this is happening, gear reducer replacement is have to be done.

Few beta values are gained through Weibull distribution. Failure rate will increased by years. This is have to be controlled to not surpass the given maximum limit. Different parameter beta gives different impact to critical value and End of Useful life. Regarding to the result of data processing and analysis, unknown that the end of useful life of gear reducer is 40 years and through few considerations, therefore, the proposed inspection schedule will be done at 32nd, 34th, 36th, and 38th year. This schedule gives money saving Rp 38.538.000,- .

Key words: : inspection interval, replacement, Risk Based Inspection, Parameter of Weibull, vibration