

DOCKET NO. 50-336

ATTACHMENT 1

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

REVISION TO ISI/IST PROGRAM

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Another important requirement to assure reliable bearing temperature monitoring is that it be continuous, not periodic. Experience indicates that failing bearings whether anti-friction type or sleeve often exhibit fluctuations between normal and abnormal metal temperatures. A good example is the babbitt lined sleeve bearing which will initially experience a rapid rise in temperature and then return to normal temperatures after the bearing wipes and clearances open up causing increased oil flow. The abnormal temperature rise would most probably go undetected unless continuously monitored.

The monthly vibration signature analysis conducted by NNECO will detect bearing problems at a very early stage. At the onset of a bearing problem, low level vibration will be generated at characteristic frequencies depending on the nature of the problem. The low level vibration typically amounts to less than 1% of the overall vibration amplitude and therefore cannot be detected by a simple amplitude monitoring program conforming to IWP minimum requirements. However, the low level changes in bearing distress frequencies are routinely detected in the MP-2 signature analysis program and analyzed to pinpoint the cause.

#### Alternate Testing

Record and analyze pump vibration signature. Signature will be measured as velocity spectrum over at least 8 times the rotational speed. Signatures will be evaluated using the acceptance criteria of Figure IWP-1. This monthly analysis will provide more meaningful analysis of pump bearing condition than annual measurement of bearing temperature.

### ACCEPTANCE CRITERIA - FOR FIGURE IWP-1

#### Acceptable

All values of the velocity signature fall within the "acceptable" range of Figure IWP-1 and the overall RMS value of the velocity signature is less than 6VdB above the baseline signature.

#### Alert

Any value of the velocity signature which falls within the "alert" range of Figure IWP-1 or the overall RMS value of the velocity signature increases by more than 6VdB.

#### Required Action Range

Any value of the velocity signature falls within the "required action" range of Figure IWP-1