Failure Mode and Effects Analysis (FMEA) Activity

1. Review the chart below for a FMEA on the 36-1A pump. Use the terms on page 2 if needed.
2. With a Risk Priority Number (RPN) of 210, the team wanted to make some improvements. So the improvement on line 1 was performed.
3. Complete the 3 red boxes on line 2 to reflect your judgment on how the RPN has changed.
4. If you think additional improvements would pass a cost-benefit analysis, go ahead and make those recommendations.

Failure Mode and Effects Analysis

Subsystem: 36-1A Pump

	Function	Functional Failure	Component	Failure Mode	Effect of Failure	Severity	Cause of Failure	Probability	Current Control/ Indicator	Detectability	RPN	Improvements	New RPN
1	Provide 1000 gpm of additive to process	No flow	Motor	No rotation/ torque	Shuts down process	10	Bearing seize due to lubrication issue	7	Lube motor bearings	3	210	Include on vibration and IR route	
2	Provide 1000 gpm of additive to process	No flow	Motor	No rotation/ torque	Shuts down process	10	Bearing seize due to lubrication issue		Lube motor bearings				

Failure Modes and Effects Analysis (FMEA) Terms

Component
Group parts into an identifiable package that performs at least one significant function. Ex. Motor, valve, power supplies, turbine

Failure mode
Manner in which part or system fails to meet design intent

Effect of failure
The experience the owner encounters as a result of a failure mode

Cause of failure
A potential cause

Current Control
The in-place indicators or control, scheduled design verifications and quality assurance inspections

Severity ranking
An evaluation of the consequences of a failure mode on the end user

Probability/Occurrence ranking
An estimate of the probability that a failure mode will occur. An estimate of the likelihood that if a defective part is installed it will cause the failure mode

Detection ranking
An estimate of the probability that a cause of a potential failure will be detected and corrected before reaching the end user. An estimate of the probability that a cause of a potential failure will be detected and corrected before a failure can occur.

Risk Priority Number (RPN):
The product of severity, occurrence, and detection rankings

Method 1: Severity x Occurrence x Detection = RPN