



# SYSTEM 1 Machinery Management

Bently Nevada engineers and System 1\* software provides essential support during turbine material loss. Bently Nevada’s System 1 software was instrumental in diagnosing a critical turbine issue at one of India’s largest privately-owned oil producers, preventing unplanned downtime and loss of production. The customer’s site has a Supporting Service Agreement (SSA), Bently Nevada’s System 1 software and three resident Bently Nevada engineers.



### **PROBLEM**

The customer experienced a vibration alarm on one of its steam-turbine-driven boiler feed water pumps. Multiple restarts were attempted, with a high vibration alarm tripped each time. Bently Nevada’s resident engineers were asked to use System 1 data to determine the root cause.

### **SOLUTION**

Upon analyzing System 1 data, the resident engineers observed that vibration levels on all radial proximity probes suddenly increased within milliseconds. The historical data showed that there were no abnormal vibration levels before the initial incident. Based on the data, Bently Nevada engineers were able to determine that there had been a sudden material loss from the turbine. An inspection was recommended immediately. The turbine rotor inspection revealed material loss—the turbine had lost two rotor blades and broken the shroud. The rotor blades and shroud were repaired before any further damage occurred.



System 1

### **PAYBACK**

By repairing the turbine before additional damage occurred, the customer avoided lengthy unplanned downtime and loss of production. System 1’s Event Manager High Resolution Data Collection and Storage feature gave Bently Nevada engineers current and reliable data to correctly and quickly provide the customer with a solution. Based on Bently Nevada’s System 1 data and an accurate diagnosis of the problem, the customer was able to save over \$75,000 USD.

### **BENEFITS**

- Rapid diagnosis of problem and ability to isolate root cause – substantially reduces need for unplanned downtime and loss of production.
- Helps reduce machinery failure severity – by continuously monitoring critical parameters and alerting operators to problems before they progress to catastrophic failures.
- Enables timely and informed decisions – through careful analysis of reliable and accurate condition data.



Supporting Services Agreement

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