SpetSee[®]

ShockLog[®] Cellular GL – Steam Turbines Case Study

Industry

Application

Power Generation

Steam Turbine Rail Car Transport

Challenge

There's nothing easy about shipping large power generation equipment. The journey manufacturing plant to installation site can often transcend different terrains and cover thousands of miles. An average natural gas turbine can weigh anywhere from 80 to 100 thousand lbs. and a steam turbine can weigh upwards of a quarter of one billion lbs. To ship these massive metal machines, power generation equipment manufacturers use a special type of rail car called a Schnabel car, which sits only a few feet off the ground and is fitted with over a dozen axels tosupport the weight of a turbine

Unsurprisingly, the cost to produce a turbine is anywhere from two to five million dollars. If a turbine is damaged in transit, it must be sent back to the manufacturing plant for millions of dollars in repairs, not considering the associated cost of downtime. What is surprising, is that the cost of a specialized Schnabel car is upwards of five million dollars, and also susceptible to damage; meaning that one turbine shipment will involve \$10 million in fragile assets.

One major power generation equipment manufacturer was experiencing damage to their turbines and specialized rail cars during shipment and needed to know what was happening. More specifically they wanted to see the direction, amplitude and duration of impact forces to determine which impacts were causing damage, along with the precise location of the impact.

Solution

The manufacturer used the ShockLog[®] Cellular GL impact monitor with real-time 4G, cellular communication (3G and 2G fallback), visualized in the SpotSee Cloud to monitor their multi-million dollars assets. The ability to capture precise location and low frequency impact enabled them to mitigate further rail car damage and product damage by identifying damaging impacts and clarifying responsibility.



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ShockLog[®] Cellular GL Overview

Real-Time Impact Monitoring and Tracking Solution

The ShockLog[®] Cellular GL Impact Recording and Tracking System combines an advanced shock and vibration data logger (the ShockLog 298) with real-time tracking. When a programmed impact level is exceeded, a detailed event curve will be recorded, and the ShockLog Cellular GL module will send a real-time alert letting you know when and where a potentially damaging impact has occurred during the journey. This allows you to act before the shipment is received or plan repairs before final installation of the asset in the field.

Protect Your High Value Assets

Benefits of the ShockLog Cellular GL

- **Real-Time Alerts:** Immediate notifications when impacts occur.
- GPS Accuracy: Track asset location with precision.
- **Global Connectivity:** With 4G LTE, 3G, & 2G integrations, stay connected wherever your assets travel.
- **Data Insights:** Access detailed impact and environmental data through SpotSee Cloud.

SpotSee Cloud

The SpotSee Cloud is where trip data is aggregated in real-time. The graphs are easy to read and include data impact with locations, impacts over time, histogram, temperature, and location of events.

SpotSee Cloud Features

- Access to your data from anywhere with a secure web portal.
- Real-time reporting and tracking of incidents.
- Alarms with location, time, impact g-level, and direction of impact.
- Impacts-over-time visualization of each asset.
- Histogram of the total impacts to an asset mmediate notifications when impacts occur.



Benefits of the ShockLog 298

- **Condition Monitoring:** Record up to 870 events: impact; max peak X,Y, and Z; gRMS; and internal temperature. Direction, amplitude, and duration of impact.
- **Customization:** User-definable warning and alarm levels.
- **Cloud Based Interface:** Monitor journey conditions in real time with ShockLog Cellular GL.

