CASE STUDY

How Rio Tinto Reduced Noise Exposure in Condition Monitoring with Sensear

Client: Rio Tinto
Industry: Mining

Overview

When heavy machines fail, costs rise fast. That's why Vibration Analysts play a vital role in predictive maintenance—listening to bearings and rotating parts to detect issues before they become failures. But for Rio Tinto's analysts, one issue was already critical: dangerous noise exposure from their own monitoring equipment. That's why top oil and gas companies around the globe rely on Sensear's Intrinsically Safe (IS) headsets to stay protected, productive, and connected in the loudest conditions.

That changed when Rio Tinto partnered with Sensear to deliver a tailored hearing protection and communication solution—one that worked with their existing gear and protected analysts without compromising performance.

The Challenge

Vibration Analysts use sensors and audio amplifiers to detect faults in pumps, motors, and other rotating machinery. The very tools they rely on often expose them to dangerous spikes of high-decibel sound, especially through their headsets.

- **Noise-Induced Hearing Loss (NIHL):** Repeated exposure to amplified sounds created long-term hearing risks.
- **Equipment Compatibility:** Most hearing protection devices were incompatible with their high-sensitivity analyzer units.
- **Analyst Fatigue:** The unpredictability of sudden bursts of loud noise increased stress, distraction, and fatigue on the job.
- **Duty of Care Concerns:** Rio Tinto needed to protect their specialists without asking them to sacrifice precision or adopt new equipment systems.

As condition monitoring became more advanced and analysts spent longer periods with high-decibel tools, the need for a safe, **integrated hearing protection solution** became critical—one that could protect without disrupting precision or performance.

The Solution

Sensear partnered with both Rio Tinto and their analyzer vendor to design a custom cabling solution and adapt the SENS® Technology software to work directly with their existing diagnostic tools.This ensured seamless integration, enhanced safety, and clear communication in one of the most challenging industrial environments.

What Made the Difference:

- **Full Situational Awareness** while using Two-way radios or Bluetooth® devices
- **Clear Face-To-Face Conversation** without removing PPE
- **FM Short-Range Communication**—ideal for 1:1 comms within 50 meters
- **Rugged, Over-Ear Design** built for harsh field conditions
- **Future-Ready** planning for IS headset deployment in hazardous zones

> **"I have found the clarity to be great—especially how it shuts out extreme noise from some bearings."**
>
> — **Vibration Analyst,** *Rio Tinto*

The Results

Rio Tinto's Asset Management team immediately saw the value of the new system:

- **Improved Hearing Safety:** Analysts were no longer exposed to high-decibel spikes.
- **No Workflow Disruption:** Analysts kept using familiar equipment—now safer.
- **Analyst Confidence:** Workers felt more secure knowing they were protected without losing clarity.
- **Zero Downtime:** The switch was simple, and results were immediate.

Looking Ahead

With energy companies pushing deeper into complex, high-risk operations, **Sensear's Intrinsically Safe communication solutions** are becoming standard gear. From tank inspection to offshore platform operations, workers now operate with clarity, protection, and confidence.

Conclusion

Whether it's identifying a faulty bearing before failure or staying protected while diagnosing heavy equipment—

Sensear makes it possible.

Sensear helps Vibration Analysts stay focused, precise, and protected—without compromise.

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