RBI methodology – risk under control

In 2011, Grupa LOTOS was first in Poland to implement the Risk Based Inspection (RBI) methodology, a system for comprehensive management of risk related to the operation of pressure equipment. The system allows us to predict potential equipment failures.

In 2015, we completed an analysis of unit 250 (Hydrogen Generation Unit). Currently, we are analysing risks for 12 key units which, if stopped, may have extremely adverse consequences for the operation of the refinery as a whole.

Key benefits of full RBI implementation:

- It results in greater reliability of unit operation;
- The period of uninterrupted operation of the refinery between maintenance shutdowns should extend from 4 to 5 years;
- Accident prevention is a source of savings counted in millions;
- Higher output.

Why is RBI so important to Grupa LOTOS?

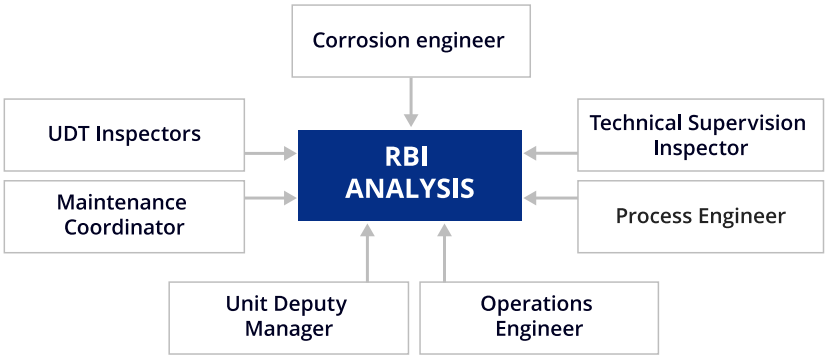
Most of the refinery's plant is pressure equipment: pipelines, columns, reactors, tanks. They are often subject to high pressures and temperatures and exposed to corrosion and erosion. Even though made of resistant metal alloys, their wear and tear is inevitable as time passes. The equipment is overseen by internal services and the Polish Office of Technical Inspection (UDT), which defines its safe operating lives and decides how long the equipment, units and refinery can operate without a maintenance break.

By Implementation of the RBI together with the UDT involves a check of nearly 8,500 pieces of equipment and determining which carry the highest risk of damage. By focusing on particular pieces of equipment we limit the risk of breakdown.

What are our goals?

2017 will see a maintenance shutdown and our plan is that by that time the RBI methodology should cover as many key units as possible. In this way, during the shutdown we will be able to inspect the instruments and equipment that carry the highest risk of degradation, selected based on an RBI analysis.

RBI Team



The RBI teams assigned to individual units comprise more than 40 staff. In addition to the team leader – a supervision inspector from Grupa LOTOS, each team includes two or three UDT inspectors, scientists from the Gdańsk University of Technology, corrosion engineers, plant engineering and maintenance engineers, as well as process and operations engineers from the production division.

Our teams include two engineers who are the only engineers in Poland holding certificates issued by the American Petroleum Institute (API).