

# Industrial tower in the largest mining tailings reservoir in Europe



## 3DSensor: Case Study

Żelazny Most Reservoir is the largest reservoir for copper mining tailings in Europe, owned by KGHM Polska Miedź. It was put into exploitation on February 12, 1977. There are 4 industrial overflow towers on the site. One of them in 2018 was equipped with vertical 3DSensors to monitor temperatures and horizontal displacements. One of the reasons for DFOS-based monitoring system installation were construction works to build the tower's new floors.



## Benefits of application

- Knowledge on **horizontal displacements** and temperatures along the entire depth
- Full **assessment of tower deformation** state, including uneven settlements
- Detailed **control of construction works** in the upper part of tower (new floors)
- Unique data on old industrial structure for **FEM validation** and **safety assessment**

## Example results

Seven segments of 3DSensor were delivered on site and installed on the walls of the tower's individual storeys, along its entire depth. Segments were connected together through the floors to create continuous sensing line. The measurements were performed during entire year to analyze the influence of significant temperature changes. This reliable system working in harsh, aggressive environmental conditions allowed the horizontal displacements of the tower to be measured with extremely high spatial resolution.

*Successful application of unique 3DSensor was awarded in prestigious Copper Basin Master of Technology competition.*



**3 400** measurement points



**34 m** of sensing path



**7 x** 3DSensor



**long-term** monitoring



project  
partner:

