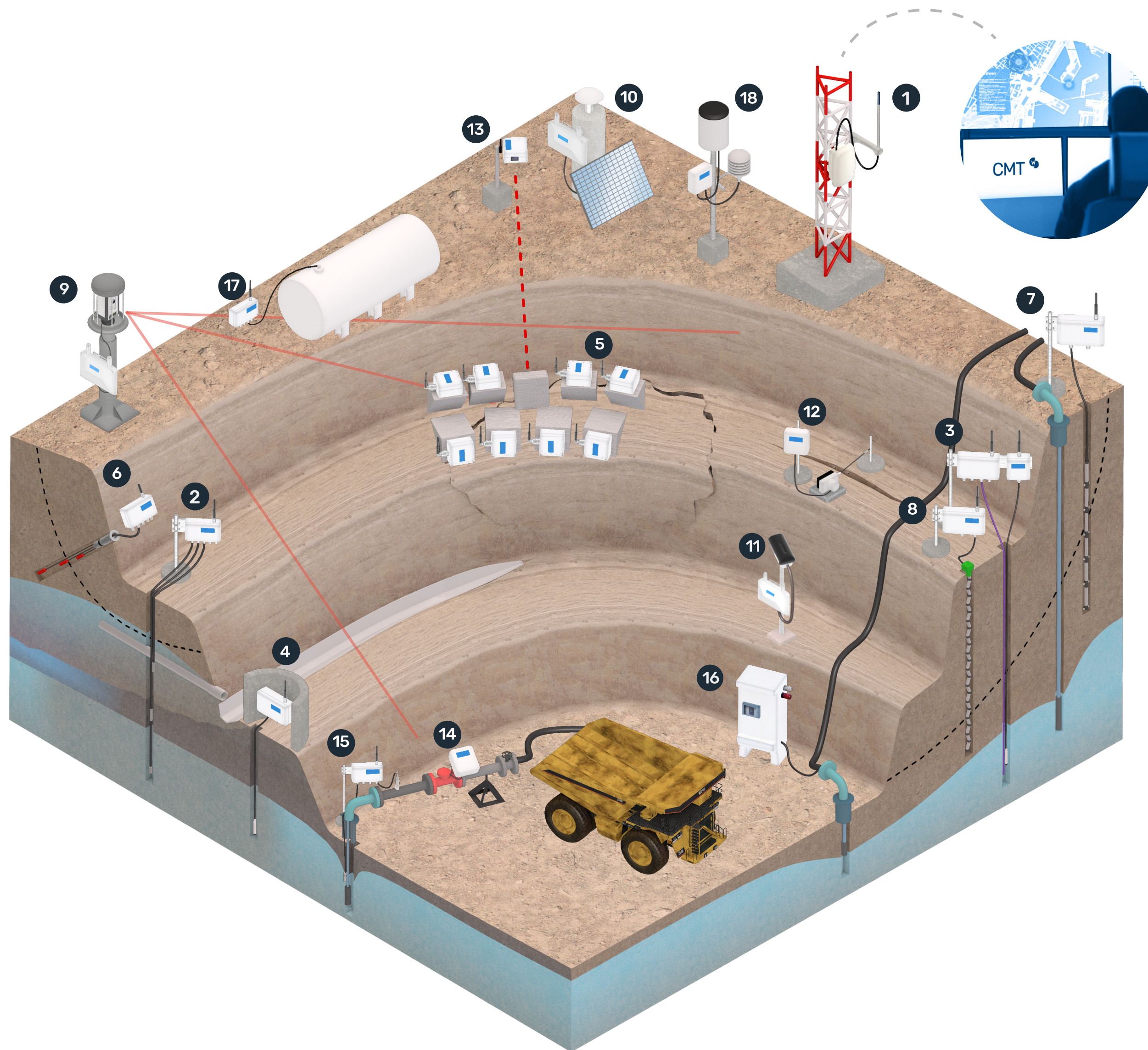


# IoT Remote Monitoring Solution Open Pit Mines



- 1 Remotely manage and monitor your deployed devices and networks. Obtain monitoring data either on-premise or through the cloud. The gateway sends all data to the **Connectivity Management Tool (CMT)** based on your selected sampling rates. Integrate your data analytics software in CMT to create complete monitoring reports.

## GEOTECHNICAL | GEOSPATIAL MONITORING

- 2 Monitor pore water pressure through vibrating wire piezometers in a borehole connected to a **Vibrating Wire 5-channel data logger**.
- 3 Assess the pore water pressure with a piezometer connected to a **Vibrating Wire 1-channel data logger**. Locate the depth of a sliding surface using coaxial cables and a Time-Domain Reflectometer (TDR)<sup>1</sup> connected to an **Analog data logger**.
- 4 Analyze the quality of the water with a water multi-parameter probe connected to a **digital logger or a Thread X3**.
- 5 Detect slope movements in real-time (less than 2 seconds in most cases) through the **Tilt90-X wireless tiltmeters for the Event Detection Solution**.
- 6 Measure vertical deformation at various depths with a multi-point borehole extensometer (MPBX) connected to a **Vibrating Wire 5-channel data logger**.
- 7 Assess horizontal displacements through in-place inclinometers connected to a **digital logger** mounted on a pole.
- 8 Assess horizontal displacements through ShapeArrays connected to a **digital logger** for up to 100 segments and or a **Thread X3** for longer chains.
- 9 Complement your geotechnical monitoring with a total station connected to a **Thread X3** for accurate movement detection.

- 10 Accurately measure 3D displacement of structures and ground movement using precision GNSS sensors connected to a **Thread X3**.
- 11 Integrate automated remote visual observations to your condition monitoring program with a field camera connected to a **Thread X3**.

## STRUCTURAL MONITORING

- 12 Monitor movement across surface cracks with a draw wire sensor connected to a **Piconode**.
- 13 Check the relative distance variation of the slopes with the **LaserTilt90**, a 3-in-1 laser distance meter, inclinometer and data logger, pointing at a target surface.

## PROCESS MONITORING

- 14 Pumping rate measured with a water meter connected to a **Piconode**.
- 15 Monitoring water level and temperature in the dewatering well and pressure in the pipe through a water level sensor and a pressure transmitter connected to an **Analog data logger**.
- 16 Control water flow in dewatering operations with a Variable Frequency Drive and a flowmeter connected to a **Thread X3**.
- 17 Monitor diesel fuel levels with a fuel tank level sensor connected to an **Analog data logger**.

## ENVIRONMENTAL MONITORING

- 18 Monitor precipitation with a rain gauge and air temperature with a thermistor connected to a **Piconode**. If you need to monitor more parameters, use a weather transmitter connected to a **digital logger**.

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