

# MUD LOGGING SERVICE



## Range of activity:

- Registering and processing the technological parameters of the drilling operation
- Registering and processing the geological parameters

## Mud Logging equipment allows us to measure and interpret:

- Characteristics of the formation gases
- Mechanical parameters
- Mud parameters
- Geological data
- Formation pressures

## Urządzenia

- Mud logging unit with equipment – Motonaft Tercja
- Advantech Servers – HP
- Additional computes– Asus, Acer, HP
- Chromatograph - Baseline, Inficon, Agilent
- Methanometer- Tercja
- Calcymeter - Tercja
- Sensors - Aplisens, Bailey, Tercja, Truck,
- Printer plotters - HP
- Sensor's cables- Labcable
- Explosion-proof rig floor monitor- Stahl

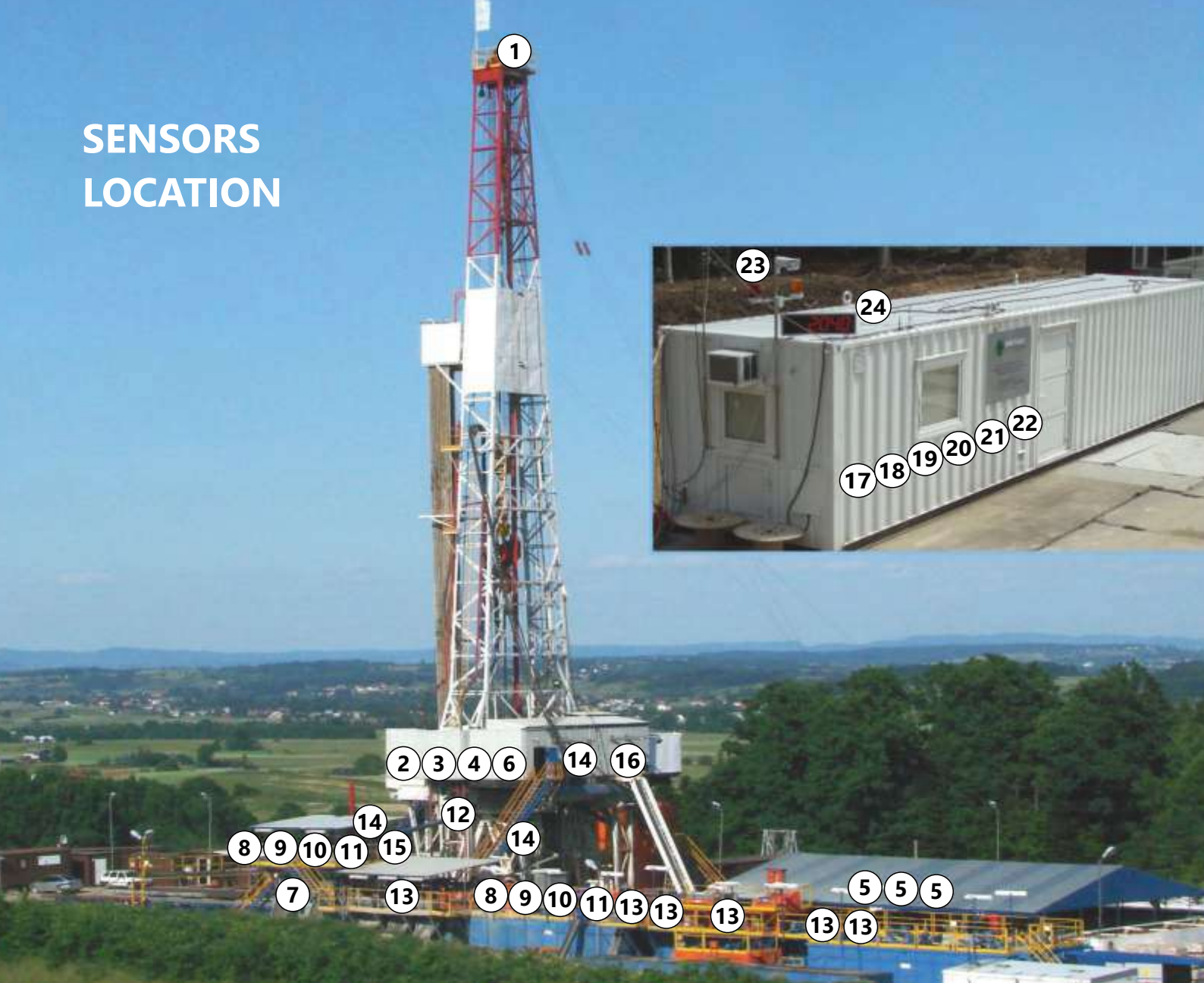
## FIELD LABORATORIES

A Portable Laboratories 12 m length (working area 7m) equipped with:

- Min. 7 PC computers working in the network Windows operating system, WellDAQ, Rockware and Ms Office programs (3 in mud-logging unit, 1 at a tool-pusher's office, 1 in operator's office, 1 in geologist office, 1 drill floor monitor)
- Electric barrier
- Different sensors
- Chromatograph, Total-gas,
- Calcimetry, Bulk density
- Microscope, UV box
- Alarm panel
- Printer-plotters



# SENSORS LOCATION



- 1. DEPTH
- 2. HKLD
- 3. RPM
- 4. TORQ
- 5. SPM
- 6. PMPP

- 7. CASP
- 8. MWTI, MWTO
- 9. TMPI, TMPO
- 10. CNDI, CNDO
- 11. PHI, PHO
- 12. FLOW

- 13. PIT
- 14. H2S
- 15. DEGASSER
- 16. RIG FLOOR MONITOR
- 17. MICRO GC
- 18. TOTAL HYDROCARBON ANALYZER

- 19. MICROSCOPE
- 20. CALCIMETER
- 21. BULK DENSITY
- 22. UV LAMP
- 23. GAS ALARM PANEL
- 24. DIGITAL DEPTH DISPLAY

## Measured and recorded data

### Mechanical parameters

- depth and drilling rate
- rotary RPM
- rotary torque
- hook load
- weight on bit
- pumps spm
- stand pipe and annular pressure

### Gas parameters

- chromatograph C1- C5, CO<sub>2</sub>
- total-gas
- analysis of gas coefficients
- H<sub>2</sub>S

### Mud parameters

- temperature
- pH
- resistance
- flow indicator
- volume in tanks

### Pressures analysis

- "D" exponent
- shale density
- temperature prognosis
- pressure control

**All computer operations connected with the real-time monitoring of a drilling process are supported by the WellDAQ program, working in the Windows operating system environment.**

WellDAQ is a user-friendly program which provides:

- quick measurement/logging, calculation and data acquisition
- automatic saving/recording into two databases: a time-related one and a depth-related one
- combining information and data from various sources on a rig site (geophysics, directional service, mud service)
- data real-time visualization on networked PC workstations,
- prompt creation of logs in any configurations,
- optimization drilling process,
- setting alarm thresholds for any parameters / values
- making of daily, interval and final well reports and logs

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