

Naftachem Oil Terminal, Sremski Karlovci

Control and Automation of Oil Terminal

Naftachem Oil Terminal is located in Sremski Karlovci, Serbia. It consists of several tanks for storage of various products, as well as truck loading and ship loading facilities.

Control and automation system delivers multiple functions:

- Control and supervision of truck loading (loading bays)
- Pump control, and delivery lines automation (supervision of line valves)
- Supervision of tanks (storage facilities)
- Control and supervision of fuel addition system, VRU system, and other related sub-systems



Facility design and demands of TAS application

Terminal was designed to provide storage facility, together with truck loading facility with certified custody transfer measuring systems for delivery of various fuel products. In order to meet such demands it was necessary to design and install modern and all-encompassing TAS system (terminal automation system).

Main role of TAS is to provide control and supervision over truck loading facilities, and also to offer support on various operations such as supervision of stock, and delivery of all necessary analysis and reports. In addition, TAS would provide basis for integration of various sub-systems, and prepare data for exchange with ERP systems.

WIG technical solution

WIG solution for TAS encompasses selection and installation of measuring and system equipment, design of automation system, design and implementation of software applications, as well as integration of sub-system from other contractors on this Terminal. Equipment was selected to conform with all current regulations and standard for such type of facilities.

System for control and supervision provides automated operations, with options for manual control.

Software environment for TAS is completely adapted to needs of user.



Truck loading facility is based on measuring systems installed on loading bays. Such type of modern installation includes:

- 2 bays, with total of 4 measuring lines for delivery of fuel products
- 2 CT measuring lines for fuel products reception
- Possibility of top and bottom loading
- Automated system for additive injection
- VRU system with BUSCH vacuum system technology
- Several different automated lines for both delivery and receiving (combination of 8 tanks, 5 main pumps, and multiple pipelines)

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VRU

WIG, together with its partner for VRU installations, Carbovac, delivered and installed complete VRU unit. Following equipment is used for this installation:

- Vacuum system BUSCH –NC0630 (630 m³/h @50 mbar)
- 2 x ISO2858 centrifugal pump (15 m³/h)
- 2 x KROHNE H250 rotameter
- 2 x KROHNE BM26A level meter
- ABB VFD
- S7 315 (MPLC) + S7 313 (SPLC “Watch Dog”) control system



System equipment and software

Isoil **VEGA II** flow computer with Ex-d protection, pulse input, discrete and analog inputs and outputs. Single meter unit. Automated control of additive injection. Total of 6 units installed on facilities.



Siemens **S7 1500**, universal PLC unit. Profibus DP integration of remote units (P+F RIOS), control of input and output signals (analog and discrete). Single S7 1500 unit installed on facility.



Isoil **FLEXIMIX**, unit for additivation control. Ex-d protection, possibility of independent operation, as well as working with VEGA 2. Control of up to 4 additives at once. Total of 2 units installed on facilities.



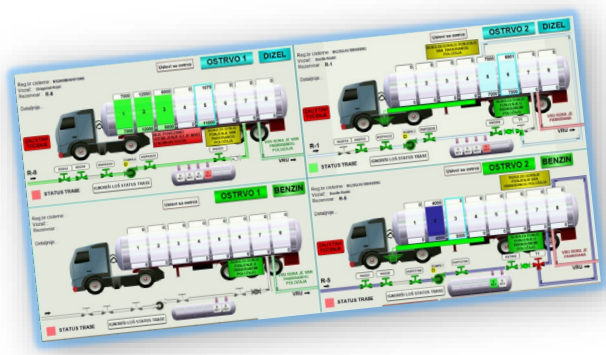
HP server workstation: **HP Proliant, HP ThinClient**. Virtual system environment.
 Operation system: **Microsoft Server 2016**
 System software: **Wonderware SP 2017, Dream Report**.



Features and benefits of specific WIG solution

Terminal was automated according to project designs. Main control over operations is remote, delivered from operator station at control room.

Manual control of main operations is possible, but envisioned only in case of catastrophic failure of automated system (remote control).



Some benefits of this type of software solution are:

- Possibility of integration of various sub-systems
- Possibility of multiple functional upgrades
- High quality system for data archiving and analysis
- Diverse and detailed reports (adapted to user)
- Possibility of connection with SAP & ERP systems

