



## Project Exxon Mobil

The ExxonMobil plant in Großenkneten is one of the largest gas treatment plants in Germany and an important location for ExxonMobil in Germany.

The PCS basis is built in 1980er years based on Siemens Teleperm-M and Simatic -S5 systems.

In summary, the PCS contents 5 CS275 busses with 21 pieces AS235 and 24 pieces Simatic –S5 which have to be replaced. The HMI-system with 10 pieces OS265 must also be migrated. Honeywell gets the order to migrate the old Siemens systems to the Honeywell Experion-PKS system.

The scope of AKO-TEC as a partner of Honeywell was to define an optimal concept to replace the components without a system shutdown during the OS-Migration (1. migration step). The migration of the Siemens Controllers was performed by planned revisions of 3 years.

Ako-Tec has delivered 10 pieces ADC-Bridge-TM™ to connect the Experion-PKS to the Siemens CS275 bus. For a successful partial migration with a strong time-schedule we have decided to develop automatic migration tools for Teleperm-M/ME OS and AS.

With the RDTB it is possible to create the documentation of the Teleperm-OS and AS automatically. The benefits are:

- Automatic import of Teleperm-M/ME source files
- Different types of the documentation possible (As-built or with new typicals)
- Convert “Struk”, “Step” programs to FLD’s
- Easy view of Teleperm “Problems” and other blocs, like as sequencer, etc.
- Detecting of „dead“ program code and other interrupts
- PLT-Item based view, independent of the source
- Separate sheets for each controller e.g. safety- controller
- High quality via automatic generation of the new documentation (Visio based)
- Excellent quality of the new documentation, created by a Database
- Indispensable when large plants should be migrated in short time frames
- Helpful by FAT/SAT, safes the commissioning phase
- Automatically generation of source code for the new PCS possible

Based on the RDTB, Ako-Tec has delivered an “As build documentation” and in Step 2 an documentation with a system neutral body of the plant. This documentation was the fundament for all followings steps, including programming of the Experion PKS, the C300-Controller, and the safety Manager. Also we have generated check-lists for the FAT.

During the migration phase, Ako-Tec has also supported Honeywell in the programming of the Siemens systems to build up cross-communication signals between the Siemens and the Honeywell controllers for a continuous running of the plant.

So all project steps - the migration of the complete Teleperm- OS and the Teleperm and Simatic- S5 controllers - could be migrated successfully.



## Project GMVA

The GMVA plant is the second largest municipal waste combustor in Germany with 4 boiler- lines and a capacity of 710.000 t of waste. The electrical power output is 430.000 MWh. Additionally, they are also selling "long distance heating".

In summary, the PCS contents 3 CS275 busses with 35pieces AS235 and 650 pieces programmable Teleperm-cards from different types (cards for controller / calculating / valve control/ solenoid-valve control /motor control) which have to be replaced from on 2013. The HMI-system with 7 pieces OS265 must also be migrated. The complete process control system is based on KKS (Power station designation system).

The main focus of the project was to create a consistently documentation of the whole PCS.

Ako-Tec won the tender to check all parts of all lines of the PCS and revise all documents like as P&ID, KKS-List, sequential diagrams and the Software that is based on Teleperm AS235 and programmable Teleperm Cards.

The work results were used to create the tendering for the modernization of the complete PCS. The body of the new drawings of the source code should be system neutral, so that every engineering company could generate a detailed bidding without special knowledge of Teleperm program code and block functionalities.

Ako-Tec was responsible to check all documents, revise or create the new documents. In this project, the customer had confidence in the RDTB technology and the knowledge of the Ako-Tec employees.

With the results of the document revision, the customer also gets an detailed overview of his quantity structures like:

- Number of installed and used I/O's
- Effective number of installed KKS
- Classification to a hardware and software typical for each KKS
- Definition lists of the new typicals needed for a new PCS
- Signal exchange lists of all communication signals between controllers via CS275-Bus
- Documentation of all hard-wired cross-communication
- Number and content of all process windows of the old HMI, incl. dynamic elements

Furthermore, the old P&ID's were all imported to the new electrical drawing system ePlan-P8, including a dynamic visualization of all consumers (motors, valves, etc..) with the respective data sheets.

The project was finished at the end of 2011. The customer was very satisfied with the results and got detailed offers from PCS manufacturers based on the defined quantity structures, which could now be compared with each other.



## Project Statoil Visund

The Visund oil and gas field, which came onstream in 1999, is located 22 kilometers northeast of the Gullfaks field in the Tampen area of the Norwegian North Sea. Visund is expected to produce 16.000 barrels of oil per day and 0.45 billion cubic meters of gas per year.

The field is developed with a floating drilling, processing and accommodation platform. The wells in the field are connected to the platform by flexible risers. The oil is piped to Gullfaks for storage and export. Gas exports to accounts either started 7 October 2005.

In summary, the existing Process control system has been built on Siemens Teleperm M technology with one CS275 bussystem that interfaces 23 pieces AS235/AS488 controller and 4 pieces Simatic S5-155U to the HMI based on 3 redundant WinCC/TM-Servers. Besides the Teleperm CS275 bus, additional PCS7-controllers are connected through Industrial Ethernet to the HMI system.

The target of the Visund SAS Upgrade project is to replace the whole Siemens HMI system and the controllers that process the ESD- (Emergency shutdown) and F&G- (Fire&Gas) functionality. The Visund project includes a complex but seamless changeover from existing to new automation and safety systems (known as a hot cutover) to allow uninterrupted operation of the floating production, drilling, and living-quarters platform.

After passing successfully the technical qualification program with the Bridge technology developed by Ako-Tec, Statoil has awarded Emerson Process Management in partnership with Ako-Tec an EPCI (Engineering, Procurement, Construction & Installation) contract to upgrade the above mentioned systems with an Emerson DeltaV system. Offshore installation and commissioning is scheduled for completion in 2015.

Next to the delivery of products, Ako-Tec is furthermore engaged in this Upgrade project with its high qualified engineers and experts to fulfill tasks like:

- Project leading for all activities related to the existing Siemens equipment in all phases of the EPCI-project, starting with the conceptual phase (develop changeover strategies), going through FAT & IFAT, and up to the system migration offshore.
- Analysis and documentation of the existing Hard- and Software configuration in Teleperm, S5, PCS7 including WinCC.
- Markup of existing C&E-diagrams (Cause&Effect) as basis for the programing of the new DeltaV controllers
- OMMU services (operation, maintenance, modification, upgrade) on all Siemens equipment during and after the project phase
- Provide ongoing trainings & support after offshore installation

All the engineering work and documentation performed in this project is done according to the high NORSOK-standards developed by the Norwegian Oil&Gas industry.