“ Gazprom dobycha shelf” LLC

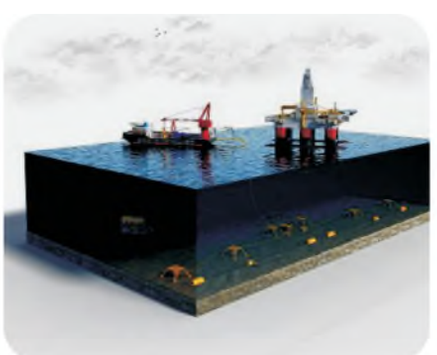
Information about works and object:

“Gasprom dobycha shelf” LLC is an operating organization of block-modular sweet corrosion inhibitor injection pump station equipped with underground storage tanks.
The pump station is constructed for unloading, storage and volume batching of sweet corrosion inhibitor. The station is fully automated. The station is equipped with two drain tanks with electric driven pump. The atmospheric explosives belong to category and group IIA-T3, electric area – B-1g according to electrical installation code.

Description of the corporate customer “Gazprom dobycha shelf” LLC

The history of the company started in 2002 when “ Sevmorneftegaz” LLC was founded in order to develop off-shore fields in the Pechora Sea and the Barents Sea. In 2014 'Gazprom dobycha shelf” LLC was renamed 'Gazprom dobycha shelf Yuzhno-Sakhalinsk” LLC. According to the strategy of “Gazprom” JSC to develop continental shelf resources, in the nearest future the priority will be given to development and upgrading of deposits of Far East Region of the country. Being 100% owned subsidiary company of “Gazprom” JSC, 'Gazprom dobycha shelf Yuzhno-Sakhalinsk” LLC has the main task to develop reserves which are considered to be in “Sakhalin -3” project such as Kirinskoe and Uzhno-Kirinskoe gas condensate fields. Development of these fields will allow to meet the requirements in energy resources of Far East Region and to create conditions for natural gas exporting to Asian-Oceanian countries (APAC).

“Gazprom dobycha shelf Yuzhno-Sakhalinsk” LLC is a customer and an operating organization which realizes the investment project “ Kirinskiy gas condensate field construction” (which is in the project “Sakhalin -3”). The object was constructed in 3 year's period of time in severe climate conditions which make logistics extremely difficult. In 2003 at Kirinskiy gas field was the first gas-in. The system of gas supply from the subsea production unit to onshore processing facilities was successfully tested. In 2014 at Kirinskiy gas field the second gas well was constructed. It was the first time when at the continental shelf controlled directional well with a horizontal part and underwater pumping was drilled. 'Gazprom dobycha shelf Yuzhno-Sakhalinsk” LLC has its rep offices in Moscow and a branch in Nogliksky city district (in Sakhalin region).



БПА
BUREAU OF INDUSTRIAL AUTOMATION

Project tasks:

'BPA' LLC has performed the below listed works.

1) Projects development
   - Full automation
   - Electric lightning
   - Power equipment
2) Assembling works
3) Electro technical cabinets assembling
4) Controller software development
5) Operator panel software development

Block-modular pump stations are perfect for distant oil and gas industry facilities. In block-modular pump stations certain pumps depending on purpose of using can be used: single and multistage centrifugal pump, plunger-type pump, booster pump station and so on. During production stations are fully in-work assembled, tested, set into traveling condition and sent to the object.

Set of works for block-modular sweet corrosion inhibitor injection pump station equipped with underground storage tanks (hereafter BMPS).
Specifications of pumpage:
Content: 60-100% - isopropil alcohol; 1-5% - organosulfur compound; 1-5% - salts of an imidazoline.
Density at 15.6 - °C – 819,8 kg/m3
Saturated vapor pressure - 74,4 mm Mercury
Cinematic viscosity at 21°C - 4,47 cSt
Explosiveness rate as per GOST Standard P 51330.11-99 – IIA
Explosiveness group as per GOST Standard P51330.5-99 – T3
Class of hazard as per GOST Standard 12.1.005-88 - 3



Solutions:

Description of hardware components set and used equipment.

On the basis of the implemented control system and emergency shut-down system are the products of STARDOM series (Yokogawa). STARDOM is a network control system produced by Yokogawa Company. Architecture of station control system has been designed for “electronic” kinds of business where the fast reaction on demand changes at the market of most process industries is highly important. STARDOM NCS meets the highest demands and provides high flexibility of control system construction which allows to solve any tasks put by a user.

FCN (Field Control Node) is a modular controller installed together with Central Control Unit, input/output modules and other modules if it is necessary. FCN supports different kinds of input/output modules. It has the best possibilities of upgrading and it can be adjusted like a highly reliable system with stand-by power supply, processor and control network.
Hot stand-by central processor system, data bus and power were used for emergency shutdown system. Separate controllers are used for operating of separate pump blocks.

Drivers SA... ExC made by AUMA Company are used as the drivers for stop valves. The drivers can be connected with explosion protected control system. The drivers can control not only the stop valves system but also micro control version which records working data or digital interface.

Control and measuring instruments by 'Metran' Company.

Being a part of Emerson Process Management Company, 'Metran' industrial group is a leading Russian company which develops, produces and maintains smart instrumentation for all kinds of industries in Russia and CIS. 'Metran' produces pressure and temperature sensors, flowmeters, metering systems, heat meters, level indicators, metrological equipment, functional equipment and other equipment.

Explosion protected control boxes and stations by Cortem Company.

Long term life time. Produced equipment meets all the requirements of 'Gasprom' and 'Transneft'. It has had operating experience in Russia and former USSR since 1970. Equipment is operated at the territory from Sakhalin to Kaliningrad and from Murmansk to the Black sea, both in severe conditions of Extreme North and in the deserts of Turkmenia.

Industrial art of explosion protected equipment by Cortem is a fresh take to solve the most complicated grand challenges. They are produced in a very elegant style.

High mechanical and commutation wear resistance is reached with the help of high corrosion resistant materials with high level of protection, not lower than IP66, equipped with the components made by the leading manufactures.

CORTEM equipment does not need often periodic maintenance. It is reached with the help of high corrosion resistant materials with high level of protection not lower than IP66 and special fittings made of stainless steel.

The special modified aluminum-silicon alloy without any copper, zink, ferrum, manganese and magnesium impurities is used together with the special casting technique.

Connection of cable (unarmoured, armoured, braided and in metal hose) with the help of cable entries and flexible armoured hoses. To arrange direct entry of the cables or wires of all sparking devices into Exd jacket (such as circuit breakers, contactors, RCD, thermal protection module, relay and so on) specifically developed Exd entries are used which are equipped with SANTOPRENE.

According to the requirements, specifications are shown in Russian National standard ROSS certificate RU.ГБ05.B03421 annex 2, page 13. It helps not to use inlet marshalling box (except an explosion-proof one), that makes CORTEM products unique in comparison with the competitors.

Rokstek cable passages

These are perfect cable passages and entries, feeder input panels, piping penetration, high-voltage buses and other conductors of different forms and sizes. Sealing elements are modules made on the basis of Multidiameter TM technology. That is the reason why only 6 types of modules are used for sealing of cables from 3 to 99mm. Single cables; pipes from 3 to 630mm are sealed with the help of pipe coupling with the adjusted inner and outer diameter. It has certified fire-resistance of TIE 120, leakproofness from 2 to 20 bar (water and gas), explosion-proofness Ex, vibration stability, protection from electromagnetic interference and radiointerference, vermin-proofness.

SCADA Wonderware System (InTouch 2012 Runtime 3K Tag with I/O)

InTouch software provides lots of possibilities of graphical rendering which helps to achieve a new level of optimization and control of course of production. InTouch HMI has high reputation due to its high quality.



Terms of project execution:

All the works were performed in 2013. “BPA” Company provided reliable and non –failure performance of the equipment: Hardware backing and using of reliable components allows to provide high quality of the product and extends its service life. Expected useful life of the block box is 40 years including 15 year till general repair. Average useful life of technical equipment is not less than 15 years. Average time of reconstruction of technical equipment excluding time of service personnel transportation is less than 1 hour.

Additional information can be received at the below mentioned links

www.bpa.ru

www.gazprom.ru

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