LETTER OF COMMENDATION
to modernization of oil heaters PTB-10/64
with the use of APCS ISA-PPN-DSKM
performed by Industrial Automation Systems LLC
(Insist Avtomatika LLC, Omsk city)

During 2004-2008 Insist Avtomatika performed the following work:

- development of project documentation on modernization of automation system and oil heaters PTB-10/64 at CPF of Krapivinskoe oil field and CPF of Pionernoe oil field, Tomskneft JSC, in order to make it conform to current normative documents on safe operation and ensure its operation as a part of APCS of CPF. Oil heaters modernization project was developed in collaboration with experienced oil heaters developer - Saratovsky research and development centre. Developed documentation is supposed to be used as an off-the-shelf project solution while modernizing oil heaters mounted at facilities of Tomskneft JSC;
- development of equipment for APCS of oil heating ISA-PPN-DSKM for 3 oil heaters PTB-10 for CPF of Pionernoe oil field, Tomskneft JSC, in accordance with the developed documentation;
- commissioning of the supplied equipment and training of operating personnel;
- warranty maintenance of equipment ISA-PPN-DSKM;
- the company performs post-warranty maintenance of automation systems for oil heaters and consults specialists of operating services.

Automation system ISA-PPN-DSKM of modernized oil heater PTB-10 operates as follows:

Oil heater is controlled from oil heater control station (CS) from local operator's panel. CS interlocks and protects the process recording initial reasons of oil heaters shutdown. Separate CS for each oil heater ensures independent operation of oil heater if there is no oil heaters operator's workstation (OWS) (in case of preventive maintenance at OWS).

OWS of oil heaters group serves for visualization, remote start and shutdown of oil heaters and other operative control over oil heating process from OWS, it also accumulates and archives information on oil heaters, equipment operation, operating personnel actions in database, and formation of reports.
Common OWS was applied for a group of oil heaters.

Congestions of supply grid by starting currents (exceeding rated current of electric drive in 6-7 times), increased deterioration of switchgear, shock loads on drive of heater blow fan when starting, and non-value-added mode of energy consumption when oil heater operation are characteristic features of traditionally used in oil heaters standard direct-connection circuit of electric drive of ventilation unit.

To eliminate these deficiencies Insist Avtomatika when modernizing oil heaters at CPF Pionerny used "gas-air" proportion regulation system and variable frequency drive of blow fan.

Application of variable frequency drive allowed not using control valve at air collector and regulating air flow by changing rotation velocity of electric drive of ventilation unit (according to Siemens when load is ventilatory 10% decrease in electric drive rotation leads to 30% safe of electric energy consumption). It also enables soft start of ventilation unit – starting current of electric drive does not exceed rated one, there are no shock loads on drive mechanisms (it is of key importance for drives of belt transmission) and supply grid.

According to comments of operating personnel application of variable frequency drive also provides a possibility to support optimum relationship "gas-air" in the whole range of oil heater load – from minimum to maximum and enables reliable remote automatic ignition of oil heater.

According to operating personnel pressure detectors Sapfir-22-MP-Ex have the following drawbacks:

1. no control over output signal without break in signal circuit.
2. no digital indication.

Pressure detectors Sapfir-22-MP-Ex are gradually substituted by Metran-100-Ex.

In the process of operation a design deficiency of flame detectors SL-90 was detected – if oil heater operates in vibration conditions photocell disconnects. More reliable flame detectors Parus-002UF-1 are applied in such cases, they have higher sensitivity.

In the process of commissioning specialists of Insist Avtomatika performed an organizational work with OBSCHEMASH LLC (manufacturer of flame detectors Parus-2UF-1) and SENSOR NPP (manufacturer of valves SENS) on modification of engineering characteristics of the above-mentioned equipment to the level required for operation at oil heaters using associated petroleum gas.

At present the above-mentioned equipment has successfully operated at oil heaters for 2 years and has positive comments from operating personnel.

At CPF of Pionernoe oil field Saratovsky research and development centre used a system of diagnostics of product coils state according to temperature of oil flows when modernizing oil heaters PTB-10. While operating oil heater deviation in process parameters of one of the product coils was detected with the help of this system. Oil heater was stopped, after coil cleaning it was started again. According to operating personnel presence of the system of diagnostics of product coils state prevented coil rupture and oil ignition and restored oil heater operation without replacing coil.

Equipment of automation system of direct oil heaters ISA-PPN-DSKM was manufactured by Insist Avtomatika at a high engineering level with the use of modern hardware and software of leading world manufacturers. Requirements of Tomskneft JSC specialists and peculiarities of the facility were considered.

Specialists from Insist Avtomatika quickly react to requests from operating personnel ensuring warranty and post-warranty maintenance of the delivered automation systems.

At oil heaters PTB-10 of CPF, Pionernoe oil field, Insist Avtomatika performed a full complex of work on development and implementation of APCS of oil heating – design, development, supply, commissioning, warranty and post-warranty maintenance.
The same work scope was performed by Insist Avtomatika when developing APCS of oil treatment at CPF of Krapivinskoe oil field, Tomskneft JSC.

Successful operation of these APCS proved a high professional level of specialists of Insist Avtomatika. Our enterprise is satisfied with performed work, quality of supplied equipment and service level and intended to continue collaboration.

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