joint stock company
underground gas storage

Investment/project specification sheet

" Reconstruction of TEG regeneration circuit for absorption column AK1AB "

(Version 0)

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1. Introduction

1.1. Purpose

Reconstruction of the TEG regeneration circuit for the absorption column AK1AB at the gathering centre ZS6 Malacky. The proposed renovation is required due to the state of wear and tear of the existing equipment.

1.2. General description

The renovation of the regeneration circuit shall include:

1) dismantling of the reboiler RK1AB, desorption column with TEG/off-gas heat exchanger, TEG/TEG exchangers, methanol separation unit, and
2) installation of a new reboiler including the fuel gas connection, TEG/TEG heat exchangers, and new I&C components as necessary. The renovation will also include extending of the technology for the processing and combustion of off-gas and construction of pipeline connections and feeders as necessary. Replacement of one C1TEG Hauke PIM 1800 injection pump and refurbishment of the F2 filter with activated carbon.

1.3. Scope of delivery

The scope of delivery is as follows:

a) Design documentation for the building permit in the scope as defined by the corresponding annex of UNIKA 2024
b) Implementation design in the scope as defined by the corresponding annex of UNIKA 2024
c) Participation in the HAZOP study
d) Manufacturing and delivery of the reboiler, heat exchangers, technology for the processing of off-gas, including I&C, piping and cable connections as necessary,
e) one injection pump C1TEG Hauke PIM 1800 and refurbishment of the F2 filter with activated carbon
f) Dismantling of existing technology that will be subject to renovation
g) Installation of the supplied technology (scope as defined in d) and e)) and connection to the existing technology
h) Modifications to the steel shelter of the reboiler as necessary
i) Commissioning of the supplied technology (functional tests, comprehensive tests)
j) Completion of acceptance tests
k) Delivery of the necessary documentation
l) As-built design documents
m) Operator training

Parts of the TEG regeneration circuit not included in the scope of supply

a) OG1AB glycol degasser and its insulation shelter
b) TEG F1 filters for mechanical impurities – 2 pcs
c) C2TEG Hauke PIM 1800 injection pump – 1 pc (backup)

d) ZK1AB condensate storage tank

1.4. Basic data

1.4.1. Project name
Reconstruction of TEG regeneration circuit for AK1AB

1.4.2. Site:
The premises of the gathering centre ZS6 Malacky

1.4.3. Climatic conditions at the place of installation:

- min. outdoor air temperature ... -28.9°C
- max. outdoor air temperature ... +40°C
- altitude ... 150 m above sea level
- max. wind speed ... 44.5 m/s

1.4.4. Required commissioning date:
10/2025

1.4.5. Estimated cost:
N/A

2. Technical solution

2.1. Current situation description

Saturated TEG is discharged from the absorption column AK1AB via an automatic valve. It then flows through the TEG/off-gas heat exchanger at the head of the desorption column, the purpose of which is to preheat the TEG and cool the off-gas. In the next step, the saturated TEG is further preheated in the upper part (c d) of the TEG/TEG heat exchanger using the regenerated TEG.
Glycol then proceeds to the OG1AB glycol degasser where the TEG, gasoline, and flash gas are separated. From there, the degassed TEG is continuously discharged through TEG filters, the lower part (a b) of the TEG/TEG heat exchanger to the reboiler.
The reboiler is a cylindrical, horizontal, non-pressurized vessel partitioned into a boiling and a storage section. In the boiling section there is a firetube with an installed gas atmospheric burner fed from the pre-burner gas pressure control line. The pre-burner gas pressure control line is located next to the boiler with part of the pipe passing through the boiler where the fuel gas is heated prior to pressure control. The burner heats TEG by means of the firetube to the operating (preheating) temperature in the range of 180 ÷ 195°C, max. 204°C, at which the gas is regenerated. Subsequently, the regenerated TEG continuously flows into the storage section and from there through the TEG-TEG heat exchanger (a b c d) to the inlet of the TEG injection pumps. The off-gas is channelled to the methanol separator for further processing. It is then

collected in the liquid state in the ZK1AB tank. The reboiler is a non-pressurised vessel and it is protected against pressure surge by a pressure relief valve set at 0.03 MPa. The primary fuel gas used is the flash gas from TEG OG1 AB degasser fed from the UP1 gas release unit and the RS1 gas pressure control station. The fuel gas pressure on the burner of the reboiler is 130 kPa max. The reboiler can only be started locally and stopped both locally and remotely. The essential state variables are transmitted to the control system and displayed in the SCADA in the ZS6 control room.

Locally, RK1AB is protected against and shut down in the event of:

- High temperature
- Low level (in both the boiling and storage sections of RK1AB)
- Low pressure (fuel gas)
- High pressure (fuel gas)

Centrally, from the control system, RK1AB is protected against and shut down in the event of:

- High pressure in the vessel
- High temperature
- The TOTAL STOP sequence for the centre

The existing equipment of the RK1AB reboiler:

- Pressure relief valve (N59 nozzle),
- Automatic local burner control system,
- Local TEG level gauge in the boiling section (N43-44), to the control system
- Critically low TEG level switch in the boiling section with transmission to the control system of the centre (N46; The LL-switch on the reboiler. Based on PID it is connected to the automatic burner control system as a local loop. It is then transferred from the automatic burner control system to the control system.
- Temperature transmitter with transmission to the centre control system (N49)
- Temperature switch (N50) with transfer to the local automatic burner control system (burner thermostat),
- Local thermometer (N52),
- Local fuel gas controller KIMRAY; TC (N51) (High Temp. Shutdown Thermostat),
- Pressure switch in the reboiler with transmission to the control system (not numbered on the PID diagram),
- Critically low TEG level switch in the boiling section with transmission to the centre control system (N47),
- Local TEG level gauge in the storage section (N41-42),
- Low fuel gas pressure switch with transfer to the local automatic burner control system,
- High fuel gas pressure switch with transfer to the local automatic burner control system.

Main operating parameters of RK1AB

TEG flow rate [lit./hour]	1800
Operating pressure [MPa]	0.025
Maximum operating temperature [°C]	204
Operating temperature [°C]	190 ÷ 204
Operating medium	TEG
Burner type	atmospheric
Burner power [kW]	197
Dimension of the cylinder Ø x d, [mm]	800 x 8,200

Main operating parameters of the TEG-TEG heat exchanger

Quantity	4 pcs (a b c d)	
	tubular part [3]	enclosure part [4]
Operating pressure [MPa]	0.035	0.45
Operating temperature [°C]	204	150
Design pressure [MPa]	0.05	0.9
Design temperature [°C]	250	220

The RK1AB reboiler also includes the following equipment installed on the common frame

- Pre-burner gas pressure control line including a burner and a flue gas chimney,
- F1 filter for TEG, 2 pcs (max. operating pressure of 0.055 MPa),
- F2 filter with activated carbon for TEG, 1 pc (max. operating pressure of 0.075 MPa),
- Electrically powered TEG high-pressure pumps, 2 pcs, (for AK1AB – HAUKE PIM 1800),
- Inlet pressure – 0.11 MPa,
- Inlet temperature – (80 ÷ 100)°C,
- Outlet pressure – 7.91 MPa,
- Pressure relief valve,
- Corresponding connecting pipes and fittings.

The reboiler is designed to be installed outdoors under a shelter in connection with the existing equipment and piping (Annex 1a,1b).

2.2. Requirements for a new solution

2.2.1. Description of the proposed solution:

We expect the proposed equipment (the reboiler TEG/TEG heat exchangers and off-gas processing including replacement of 1 injection pump and refurbishment of the F2 activated carbon filter) to be installed on a new frame fitted with anchoring elements for anchoring to the existing concrete foundation (or modified/new foundation if necessary). The location of the new reboiler including accessories is expected to be the same as that of the original reboiler RK1AB. We also expect to keep the existing steel shelter, with

modifications if necessary to ensure safe operation and maintenance of all components. Startup and shutdown of the reboiler shall be both local and remote.

The design makes use of the existing TEG degasser (OG1AB) and TEG filters (RK1ABF1 TEG, RK1ABF3 TEG). The battery limits of the project are marked on the PID diagram (Annex 2).

The new reboiler shall include the processing of off-gas (a mixture of water vapour, natural gas, hydrocarbons, and methanol), including its disposal. The new reboiler shall be free of methane emissions and other combustible gases. The flash from off-gas shall be burned as fuel gas in the burner of the reboiler. The separated aqueous and hydrocarbon liquid phase shall be discharged into the existing condensate storage tank ZK1AB.
The design shall take into account that the equipment will be operated mainly in winter. The burner, the chimney, and coolers shall be designed so that the noise parameters do not exceed the existing noise load of the surroundings (or propose other noise reduction measures). The value measured at a distance of one metre shall not exceed LAeq=74dB. Design the cooler motors so that the bearings can be lubricated but water is prevented from leaking directly into the bearing housings during the year. The burner design should be fully modulating for optimum consumption. Burner emissions shall meet the limits defined in the air ordinance for future operation. If the power input exceeds 0.3MW, POZAGAS a.s. requires compliance with the emission limits of the burner as follows: NOx = 100 mg/m3; CO = 50 mg/m3.

2.2.2. Project parameters

Main operating parameters for RK

TEG flow rate [lit./hour]	1250
TEG concentration at the outlet of the absorber [wt%]	to be calculated by the Contractor
Requested TEG concentration at the outlet of the RK [wt%]	98.9
Operating temperature [°C]	max. 204

Operating parameters for process calculations

Gas flow rate 1 [Sm3/d]	3,000,000 @80Bara
Gas flow rate 2 [Sm3/d]	2,000,000 @60Bara
Required water dew point [°C]	-8°C@7.0 MPa
Gas temperature [°C]	18

Gas composition [mol%]		
	Average composition	Limit value
methane	93.09915	min. 75
ethane	4.09133	max 6,5
propane	0.80240	max 3
i-butane	0.12787	max 2
n-butane	0.12993	
neopentane	0.00198	

i-pentane	0.02876	Σ C5+ max.1
n-pentane	0.02182	
Σ n-hexane	0.02092	
benzene	0.01205	
cyclohexane	0.00778	
Σ n-hexane	0.01231	
methylcyclohexane	0.00590	
toluene	0.00223	
ethylbenzene	0.00021	
xylene	0.00049	
Σ n-octane	0.00171	
Σ n-nonane	0.00141	
Σ n-decane	0.00013	
H_2	0.0	max. 20
CO_2	0.76471	max. 2,5
N_2	0.85695	max. 5
O_2	0.0	max 0.02

Sulphur components (mg/m3)	Average values	Limit values
H2S	0.0700	max. 5
mercaptans	0.04500	max. 6
Total sulphur	0.11700	max. 20

2.2.3. Technical requirements for the reboiler

- The vessel shall be designed and manufactured in accordance with PED 2014/68/EU and technical standards STN 69 0005, EN 13445 or AD 2000,
- The reboiler shall be fully equipped with I&C components for local and remote detection of measured quantities, including safety fittings,
- The entire vessel including corresponding piping, shut-off, relieve and control equipment shall be insulated to prevent excessive heat loss; the insulation shall be covered with aluminium sheeting. The insulation shall be UV-stable. Parts posing a risk to service personnel shall be protected against contact by service personnel.
- Design and suitably mark locations on the vessel for inspecting the wall thickness. The proposed locations shall be safe to access.

2.2.4. Energy connection requirements

Electric power

The equipment shall be powered from the switchboard 219RM. All new and existing equipment shall be powered using new cables and the cables that powered the old dismantled equipment shall be removed.

Fuel gas

The existing pre-burner gas pressure control line shall be dismantled and replaced with a new assembly with at least the same functional elements as the original line. The pre-burner gas pressure control line shall be placed within the OG1AB shelter and designed to fit the internal dimensions of the OG1AB shelter. The pre-burner gas pressure control line shall be fed by gas from the gas pressure control station and from the OG1AB flash gas. When designing the fuel system, it is necessary to consider the use of flash off-gas. The existing sediment discharge of the fuel gas supply line coming out of the OG box to the boiler pre-burner gas pressure control line is located at the lowest point outdoors between the devices and above the makeshift catch pan. This sediment discharge shall also be placed inside the OG box with a connection to the drainage sump corresponding to OG1AB. The assembly needs to be fitted with a manual ball valve and a pressure control valve. Sediment discharge should also be fitted to the fuel gas supply from the pressure control station upstream from the pre-burner gas pressure control line.

Fuel gas quantity is required to be measured and the data transmitted to the control system.

Control air

Pneumatic air distribution for pneumatic components from the air pressure distribution centre; a range of 6-8 barg.

2.2.5. Burner requirements

- The burner shall be designed to be able to burn flash gas from the natural gas treatment technology, and to be able to burn a gas mixture with limit values.
- Burner output should be designed so that the regeneration at operating temperature is within 2 hours (with outside temperature of -10°C, and the temperature inside the reboiler of 100°C)
- When the input power exceeds 0.3MW, the burner shall ensure compliance with the following emission limits: **NOx = 100 mg/m^3; CO = 50 mg/m^3.**
- The burner location shall be designed to be outside ZONE2. If necessary, propose modifications to the layout of existing facilities. In any case, the reboiler including the burner shall be located directly in the technology, where gas leaks from the surrounding technologies may occur. Therefore, propose a method how to increase the operational safety of the reboiler (reducing the risk of reboiler becoming an initiating source).
- Power modulation is expected to be in the range of 30-90% of power.

2.2.6. Flue gas temperature measurement requirements

The chimney shall be designed based on the burner output. The bottom of the chimney shall be fitted with a thermometer housing for:

- local flue gas temperature measurement;

- an opening for official flue gas (emissions) metering. The opening shall be designed to prevent service personnel from being splashed by condensed liquids and gases when opening the opening to connect a measuring apparatus.

There shall be safe access to the measuring point.

2.2.7. Off-gas processing technology requirements

Include in the design the control of the temperature of the off-gas on the desorption column, by means of a three-way valve at the inlet of the off-gas TEG heat exchanger.

Design the off-gas cooling facility based on a process calculation. For the cooling medium use air, the flow of which shall be controlled by means of frequency converters and dampers. Ensure data transfer to the control system.

Stainless steel shall be used for parts in contact with off-gas, in particular:

- Desorption column with auxiliaries,
- The piping for the hot off-gas from the desorption column outlet to the off-gas cooler outlet, including

2.2.8. I&C requirements:

New control and signalling cables need to be connected to the individual components controlled by or connected to the control system. The outer sheathing shall be UV resistant, including descriptive labels.

When designing cable routes and laying cables, the specifics of the site shall be taken into account, i.e. very high level of ground water, relocation of routes in the past, different switchboards for different technological parts, etc.

The requirements for local/remote facilities from the I&C point of view are detailed in the separate Annex 3.

2.2.9. Control system requirements:

Installation of new I&C equipment to enable efficient control of the entire gas drying technology remotely from the operator's workstation at the centre.

Estimated list of signals to the control system

a) Burner stop
b) Summary burner failure
c) Temperature of the medium in the boiling section of the reboiler
d) Low fuel gas pressure
e) High fuel gas pressure
f) Fuel gas shutdown
g) Start / Stop of injection pumps
h) Pump flowrate setting
i) Pump stroke feedback signalling
j) Pumps ON
k) Pump failure
l) Local/remote pump control

m) HH level in the storage section of the boiler RK1AB (1 x DI)
n) Continuous TEG level measurement in the boiler storage section (1 x AI)
o) H – high TEG level in the boiler storage section (1 x DI)
p) L – low TEG level in the boiler storage section (1 x DI)
q) The existing RHPA 02 pressure switch signal – 1 x DI shall be cancelled and replaced by an analogue signal – TEG static pressure in the boiling section of the boiler – 1x AI.
r) Local indication of flue gas temperature in the chimney without transmission to the control system
s) New TEG injection pumps and M9c for drying columns – depending on the type of added equipment, the required stroke adjustment may be achieved by 2 x DO "increment" / "decrement" signals, or the required stroke value shall be adjusted continuously by 1x AO signal.
t) L low level in the boiling section, boiler shutdown to protect the firetube.

Input/output modules of the Point IO shall be added to the existing switchboard DTZ1 in the collector room of the ZS6 centre. The scope of the assembly will be specified after specifying the range of signals transmitted from RK1AB. The assembly will be connected within the switchboard to the existing Ethernet network of the remote IO centre.
Any required SW modifications on the PLC and SCADA system side are not part of the scope of supply. These works will be provided by POZAGAS a.s.

2.2.10. Requirements for TEG pumps (C1TEG and C2TEG)

Replace the C2TEG pump with a new pump with local and remote stroke adjustment from the control system. Extend the functionality of the existing remaining C1TEG pump, which has only local adjustment of the TEG injection quantity, to enable the stroke to be adjusted from the control system and the injected quantity to be indicated in the control system.

Both existing injection pumps are equipped with electric motors that allow for local as well as remote plunger stroke adjustment and thus they are capable of adjusting the amount of TEG sprayed into the AK1AB drying column. It is also equipped with a plunger stroke position transmitter (feedback). All these devices need to be rewired to the control system – both because of the new signals but also because of a fault in the existing cabling.

Control from the control system with position signalling feedback. Local control should be preserved. (main motor operation, stroke adjustment).

2.2.11. Requirements for protection against the effects of atmospheric and static electricity

For this investment project it is necessary to elaborate a design for protection against the effects of atmospheric and static electricity. The newly added equipment and associated pipework, including I&C and LV equipment, shall be protected from direct lightning strikes. The facility will be located between taller buildings. The protection design shall take into account the surrounding

technology, so that the existing equipment is used as much as possible as intentional or incidental parts of the lightning protection. The equipment earthing shall be connected to the existing earthing network of the centre. All joints and connections of the protection system, including splicing, shall use spring or fan washers. Joints in the ground shall be welded. Ground-air transitions shall be protected by anti-corrosion tapes. The risk analysis in accordance with STN EN 62305-2 shall be elaborated in cooperation with personnel of POZAGAS a.s. and NAFTA a.s.
EPS shall be maintained in the current scope.

2.2.12. Service life requirements

- Glycol regeneration technology: 20 years
- Cabling: 30 years
- I&C equipment: 15 years
- Media piping and fittings: 30 years
- Pumps: 20 years
- Filters: 30 years
- Coolers: 20 years
- Buildings and shelters: 40 years
- Paint: 15 years

2.2.13. Technical recommendations

The newly built reboiler shall be designed in a manner that allows for internal diagnostics (space for disassembly and removal of equipment).
On the reboiler vessel and in the documentation the manufacturer shall indicate UTT measurement points to inspect the original and remaining wall thickness, with the possibility of repeated inspection measurements. The measurement points located under the insulation shall be adapted for regular inspection.
The equipment shall have permanent label affixed to a visible and accessible place.
Based on operational experience, when designing the corrosion allowance, choice of material, or surface treatment of the vessel inner walls, it is necessary to take into account the previous problems, especially in the locations of the welded nozzles on the reboiler.
When choosing the implementation design for the electrical circuits and equipment in the blast zone, it is recommended to choose one main type of protection.
When designing the new reboiler, take into account the existing lightning protection solution and confirm the suitability/unsuitability of the solution. In case the existing solution is found unsatisfactory, design new lightning protection.

3. Documentation

The technical part of the delivery shall contain the accompanying documentation in accordance with PED 2014/68/EU and the relevant technical standards and regulations (STN 69 0005, EN 13445, AD 2000, Decree of the Ministry of Labour, Social Affairs and Family of the Slovak Republic No. 508/2009 Coll.)

Any ATEX certified equipment must comply with Directive 2014/34/EU.

a) Data relating to the identification of the manufacturer or Contractor, the basic details of the equipment and the characteristics of the environment in which the equipment may operate.

b) Operating instructions or references to regulations containing:

- permissible uses,
- operating, maintenance, inspection, and testing instructions,
- list of requirements for maintenance of operational documentation,
- requirements for the professional competence of persons carrying out operation, maintenance, inspection, and testing,
- installation, testing and commissioning instructions,
- list of spare parts and accessories,
- warning about the risks associated with improper use of the equipment.

c) Acceptance documents containing:

- the documentation certificate, if issued,
- the manufacturer's declaration of conformity of the equipment with the safety and technical requirements,
- type test certificates of the equipment,
- any certificates of official tests or tests carried out by a test technicians or specialists,
- other documents (attestations, certificates, exemptions).

d) The vessel passport is the basic document accompanying the pressure vessel. It shall contain at least:

- manufacturer name, equipment serial number, and the year of manufacture,
- permissible operating parameters of the equipment,
- the test overpressure and the temperature of the test medium,
- operating medium data,
- certificate registration number, if issued,
- an overview and details of the materials used,
- details on safety valves and other fittings and equipment,
- data on the results of the non-destructive tests and a diagram of scan locations,
- sheets to record results of repeated inspections and tests,
- drawings with the data necessary to check the calculated dimensions,
- calculation conditions and calculated values for parts subjected to overpressure and load bearing.

e) The Customer requires a declaration of conformity for the entire scope of supply.

4. Tender documents

The following technical documentation shall be submitted with the tender:

a) Datasheets of individual equipment (reboiler, TEG/TEG heat exchangers, off-gas cooler, condensate separator, ...)
b) Labelling of all nozzles and welded-on pieces
c) Technical parameters of the burner (manufacturer, power, ...)
d) Weight and anchoring plan
e) PFD
f) P&ID
g) Layout
h) Estimated fuel gas consumption at maximum output power
i) Technical description of supplied equipment
j) List/specification (type, manufacturer, ...) of supplied I&C components (pressure transducers, temperature transducer, level indicator, flow meters, ...), and valves
k) List of spare parts for two years of operation

5. Minimum scope of testing from the project team's perspective

Test type	Yes/No	Execution conditions
Manufacturer's quality and/or material readiness tests	☒	
On-site quality testing	☒	
Pressure strength test	☒	
Pressure tightness test	☒	
Guarantee welds	☐	
Individual	☒	**Wiring of electrical parts to the control system**
Functional	☒	
Comprehensive	☒	
Guaranteed parameters	☒	
Design parameters	☒	
Other	☐	

6. Safety and Enviroment

6.1. Work conditions and restrictions

Work conditions and restrictions	Yes/No	Note
Works needed to be carried out during outages	☒	Connection to the control system
Implementation required during summer	☒	
Implementation possible during winter	☐	
Minimum temperature at which implementation is possible	Cabling 5°C	

7. Land requirements

N.A.

8. Documentation requirements

Documentation/service required	Yes/No	Note	Entity in charge of the revision
Design documents for planning permission	☐		
Design documents for building proceedings(basic engineering)	☒		Contractor
One-stage design documents	☐		
Detailed egineering	☒		Contractor
As-built design documents	☒		Contractor
Post-implementation utilities survey	☒		POZAGAS
System analysis, CED	☒		Contractor
Operator's Manual/Update	☒		Contractor
Study/feasibility study	☐		
Investment cost estimate	☐		
Environment protocol update	☒		POZAGAS
Expert opinion or position of local authority	☒	Pressure equipment and electrical equipment	Contractor
Equipment test design documents (for precommissioning/commissioning/pressure testing)	☒		Contractor
Author's supervision	☒		Contractor

Specification of materials with long delivery dates	☐	
Operating rules/update	☒	POZAGAS

9. Requirements of applied laws, decrees, norms, standards, etc.

The specific applicable equipment standards are described in the text. In addition, the supplier is required to comply with all applicable laws, standards, and regulations effective in the EU and the Slovak Republic.

10. Project risks

N/A

11. Attachments

Annex 1 Current layout of the regeneration circuit RK1AB

Príloha č.1a_Annex1a.pdf

Príloha č.1b_Annex1b.pdf

Annex 2 P&ID battery limits for AK1AB+RK1AB

Priloha č.2_Annex 2 PID hranice dodávky

Annex 3 I&C equipment specification

Annex 3 I&C equipment specifica

Annex 4 Vendor list

Annex 4 Vendor list.pdf

Annex 5 Draft structure of the control system analysis

Annex 5 Structure of the control syster

Annex 6 Project documentation format

Príloha č.6_Annex6
Objektová skladba_I

12. Abbreviations, standards and units used

ABnet	Operating network
AI	Analog Input
AO	Analog Output
ATEX	Explosive atmospheres (Directive 94/9/EC)
BNV	No explosion hazard
BRS	Safety control system
BU	Safety valve
CAG	Central area Gajary
CS (CA)	Central Station Plavecký Štvrtok (also referred to as CA PZZP)
DC	Direct current
DCS	Distributed Control System
DI	Digital Input
DDL	Long delivery date
DMV	Lower explosive limit
DO	Digital Output
EB	Energoblock
EIA	Environmental Impact Assessment
EPS	Electric fire signalling
ESD	Emergency Shutdown
ESDnet	Technology network for ESD systems
GK	Ball valve
HP	Emergency panel
IPKZ /IPPC	Integrated pollution prevention and control
LBS	Line Break System
MaR /I&C	Instrumentation and control
MeOH	Methanol
N/A	Not Applicable
NC	Normal close
OZZK	Special intervention in the Earth's crust
PBV	Surface safety valve
PDS	Gas detection system
PLC	Programmable Logic Controller
PLCnet	Technology network for PLC systems
PPBV	Sub-surface safety valve
PTB	Operational and technical building
RS / CS	control system
SCADA	Supervisory Control And Data Acquisition
SCADAnet	Technology network for the SCADA level
SCS	Station Control System
SIL	Safety Integrity Level

TD	Technical dispatching
TKx	Turbo compressor (x)
UPS	Uninterruptible power source
ZP / NG	Natural gas
ZPS	Gas gathering station
ZSx	gathering station (x)

ZLI: *"Replacement of RK1AB on ZS6"*