



NET4GAS, s.r.o

COMPRESSOR STATION JIRKOV 73 BAR

GEOGRAPHICAL CLIMATIC AND ENVIRONMENTAL CONDITIONS

29.11.2017

Annex 1,
Attachment 1.13

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1 GENERAL

1.1 Scope of the Document

This document shall define the geographical, climatic and environmental conditions at the foreseen locations of CS Jirkov. It shall be mainly taken into consideration when performing calculations regarding

- Civil Design,
 - Process Design,
 - Material Selection of all equipment
- and for Construction Planning.

1.2 Definitions

Term	Explanation
Project	Compressor Station Jirkov 73 bar
Owner	NET4GAS
Consultant	ILF Consulting Engineers

1.3 Abbreviations

Term	Explanation
aSL	Above sea level
CS	Compressor Station
EICT	Electrical, Instrumentation, Controls and Telecom
HVAC	Heating, Ventilation, Air Conditioning
I&C	Instrumentation and Controls
LV DG	Low Voltage Diesel Generator

MV	Middle Voltage
N4G	NET4GAS
VSD	Variable Speed Drive

1.4 References

No.	Number	Title
1	C4G-JI73-ILF-KS07A-STA-SIT-301	C.1 - Overview Layout - Vrskman
2	C4G-JI73-ILF-KS07A-STA-SIT-302	C.2 - Overall Layout - Vrskman
3	C4G-JI73-ILF-KS07A-STA-SIT-303	C.3 - Coordination Layout - Vrskman
4	C4G-JI73-ILF-KS07B-STA-SIT-301	C.1 - Overview Layout - Otvice
5	C4G-JI73-ILF-KS07B-STA-SIT-302	C.2 - Overall Layout - Otvice
6	C4G-JI73-ILF-KS07B-STA-SIT-303	C.3 - Coordination Layout - Otvice

1.5 Codes and Standards

No.	Number	Title
1	C4G-JI73-ILF-KS007-GEN-SEZ-840	List of Relevant Regulations, Standards and Specifications
2		
3		

2 GEOGRAPHICAL CONDITIONS

2.1 Location of CS Jirkov

The site for new compressor station shall be situated in the location "Vrskman" or in the location "Otvice" depends on the Owner's decision.

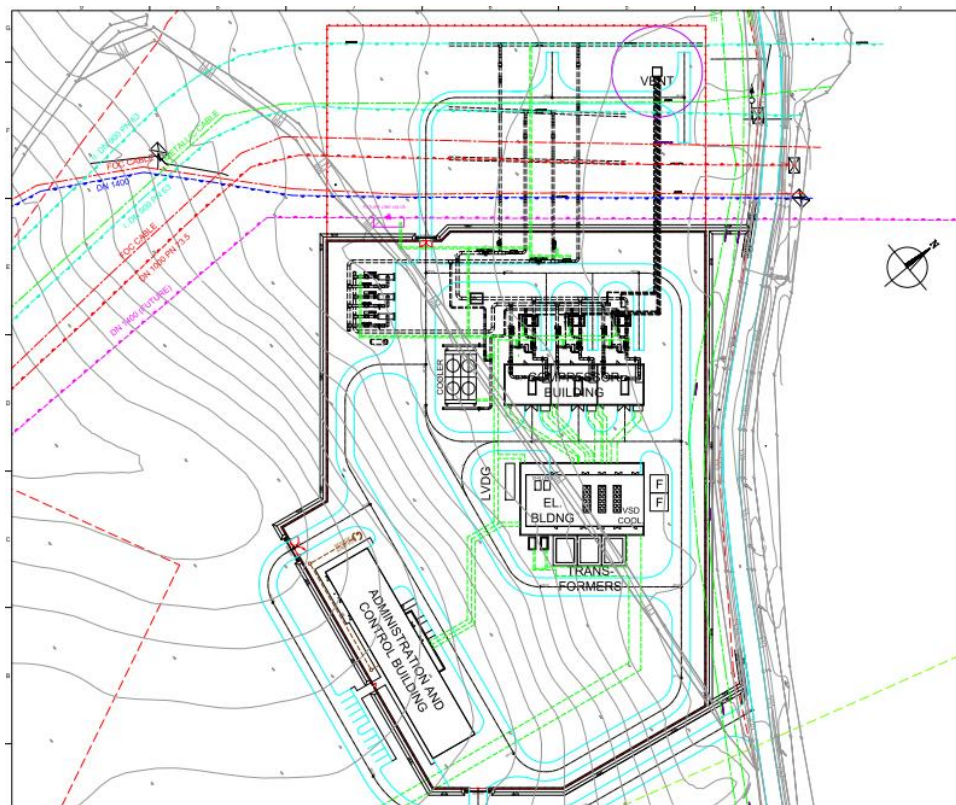


Figure 1 Map of CS at location Vrskman

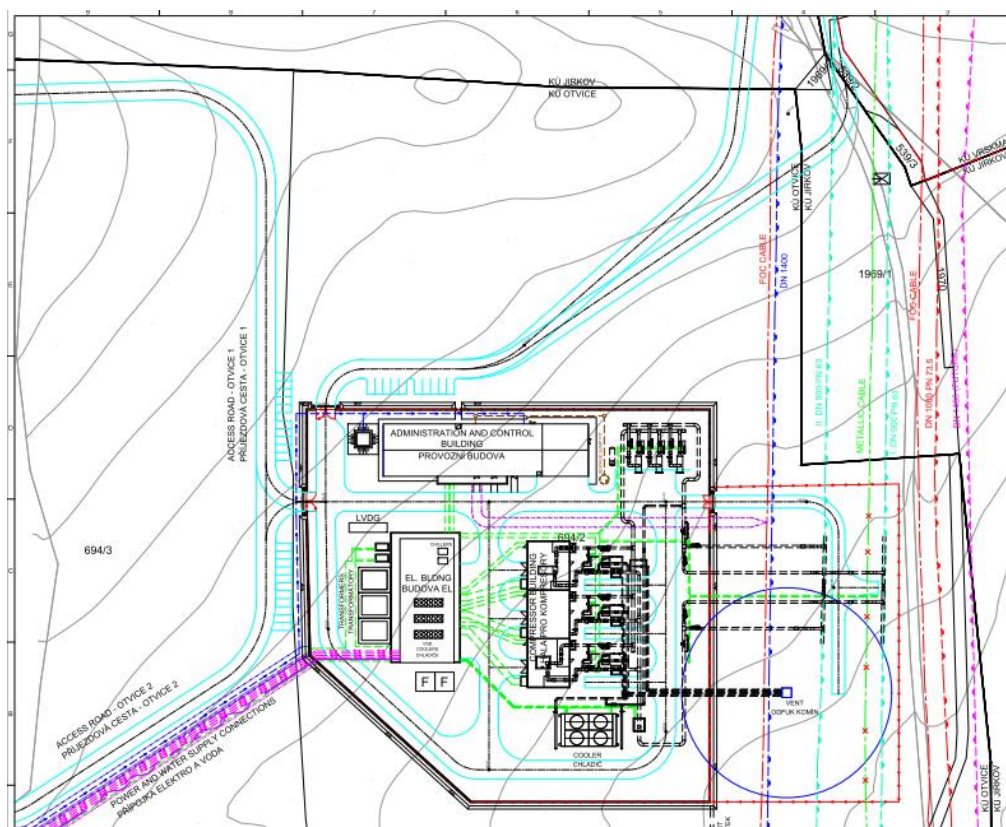


Figure 2: Map of CS at location Otvice

2.2 Location of Electrical Substation

Substation site (owned by ČEZ Distribuce, a.s.) - point of connection to the power grid, located in Jirkovská 254 street, Otvice, Ústí nad Labem Region.

2.3 Coordinates CS Jirkov

The Project Coordinate System is S-JTSK (World System).

EPSG Code 5514

The Project Elevation System is BPV

EPSG Code 5705

The local Coordinate System is defined on the coordination layouts:

C4G-JI73-ILF-KS07A-STA-SIT-303	C.3 - Coordination Layout - Vrskman
C4G-JI73-ILF-KS07B-STA-SIT-303	C.3 - Coordination Layout - Otvice

Corner points of CS Jirkov area are defined as:

Vrskman:

BOD POINT NUMBER	X	Y
A	988746.55	803955.25
B	988713.07	803922.98
C	988712.69	803902.48
D	988668.41	803859.81
E	988820.43	803702.06
F	988883.89	803717.82
G	988906.19	803739.31
H	988882.21	803835.89
I	988865.57	803831.76

Otvice:

BOD POINT NUMBER	X	Y
A	989018.69	804126.37
B	989096.08	804126.37
C	989141.69	804088.09
D	989141.69	803941.37
E	989041.69	803941.37
F	989041.69	803997.37
G	989018.69	803997.37

3 CLIMATIC AND ENVIRONMENTAL CONDITIONS

3.1 Environmental Conditions

Locality (district): **Vrskman or Otvice** (Chomutov)

Elevation: **app. 300m** aSL

Snow region: II (characteristic value of load $s_k = 1,0 \text{ kN/m}^2$)

Seismicity: product $a_{gR} = (0,02 \div 0,04) \cdot g < a_g \cdot S = 0,05 \cdot g \rightarrow$ very low seismicity

Maximum value of design ground acceleration $\approx 0,39 \text{ m/s}^2$

Radon: low risk

Note:

NA.2.8. Clause 3.2.1: *“To define seismic action, as very low seismicity cases are considered those, in which the design ground acceleration on the type ground A, the product $a_g \cdot S (= a_{gR} \gamma_I \cdot S)$ is smaller than $0,05 \cdot g$ in Czech Republic”.*

Conclusion (for technical seismicity): In cases with very low seismicity the provisions of Eurocode 8, EN 1998 may not to be respected.

3.2 Ambient Design Conditions for Outdoor Facilities

For the design of the CS Jirkov process facilities the following design ambient conditions shall be used

(dry bulb) temperatures and relative humidity:

Summer Case $T_{\max} = + 35^\circ\text{C}$ / relative humidity $rH = 34 \%$

Winter Case $T_{\min} = - 20^\circ\text{C}$ / relative humidity $rH = 100 \%$

Note: Values of these temperatures are determined from American database ASHRAE, 2013.

3.3 Indoor Conditions, Buildings

EICT Cabinet Rooms, VSD rooms, LVDG container	Tmin, °C	+5 (2,3)
HVAC Room, LVDG container	Tmax, °C	+ 40
MV Switchgear Room, EICT Cabinet Rooms (1), UPS (1), UPS room (1)	Tmax, °C	+ 40
Battery Rooms (Battery cells)	Tmin, °C	+ 15
Battery Rooms (Battery cells)	Tmax, °C	+ 30
VSD and Electrical rooms	Tmax, °C	+ 40
Local Control Room	Tmin, °C	+ 20
Local Control Room (1)	Tmax, °C	+ 25
Compressor Buildings	Tmin, °C	+ 5 (3)
Compressor Buildings	Tmax, °C	+ 40 (4)
Non Heated Storage Areas	Tmin, °C	not controlled
Non Heated Storage Areas	Tmax, °C	not controlled

Table 3 - 1 Indoor Conditions, Buildings

Notes

- 1) Rooms including Air Conditioning
- 2) This is the minimum temperature to be specified for equipment. Actual min temperature in permanent occupied rooms is higher (see HVAC design)
- 3) Frost Protection
- 4) Expected maximum 40 °C in Compressor Building; Compressor Building equipped with ventilation; considered maximum outside temperatures of 35 °C for hottest summer days.
- 5) For ICT equipment rooms ETS300-019-1-3 E3.1 is applicable.