2nd October 2013

Gas Interconnector DN800 SLOVAKIA – HUNGARY - project details

eustream
SLOVAK GAS TSO

Houston, Texas

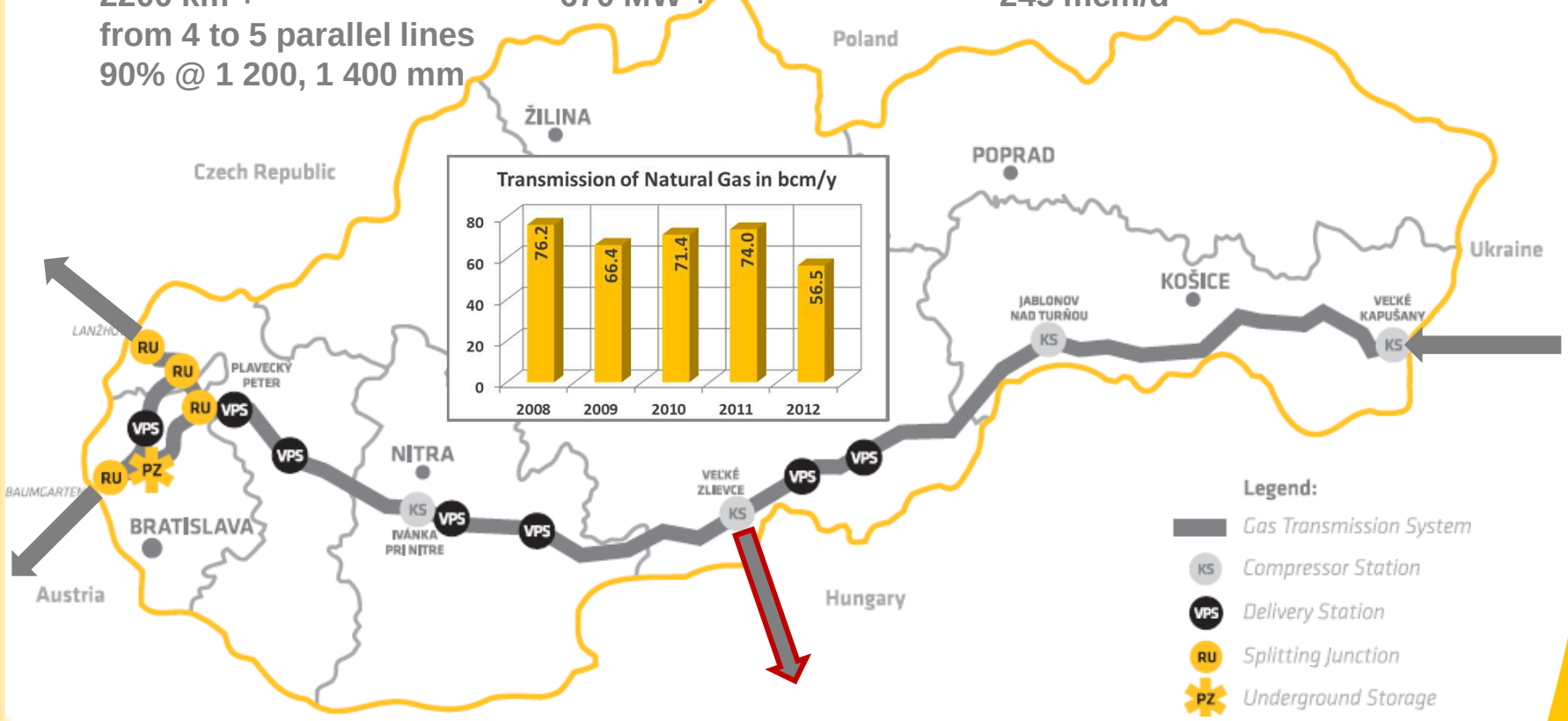
Transmission system operated by Eustream

- **Eustream operates** a high-pressure gas transmission system that is interconnected with the major European trunk lines in Ukraine, the Czech Republic and Austria.
- The transmission system operated by Eustream has proven to be **a reliable part of the European gas transmission infrastructure**.

Pipelines:
2200 km +
from 4 to 5 parallel lines
90% @ 1 200, 1 400 mm

Installed Power:
670 MW +

Transmission Capacity:
245 mcm/d



Key gas transmission infrastructure in Slovakia and Hungary

Project Targets

The main goal of the Project is to complete a network construction in order to facilitate safe and reliable gas supplies by establishing a new bi-directional high pressure gas interconnector between Slovakia (SK) and Hungary (HU).

The Project aims at creating a platform for a competitive, liquid internal gas market, with enabling the appearance of new market players, and at increasing gas supply security in the respective countries and in the wider Central-South-East European region and at ensuring the implementation of the North – South gas corridor.

Anticipated North-South Corridor

Key European gas transmission infrastructure

Project Main Parameters

Technical parameters:

- pipeline diameter: DN800
- design pressure: 75 barg
- pipeline length:

SK part:	19 km
HU part:	92 km
Total:	111 km

Gas flow: bi-directional

Technical capacity:

- first stage: SK-HU: 12.0 mcm/d; HU-SK: 4.8 mcm/d
- second stage: SK-HU: 12.0 mcm/d; HU-SK: 12.0 mcm/d

Metering station: near Balassagyarmat (HU)

Compressor Stations:

New:	Szada (HU):	2x3.5 MW
Existing:	Veľké Zlievce (SK):	112 MW

Test Operation: April/July 2014

Commercial Operation: January 2015

Financing:

Budget for SK part: 21 mil. EUR

Budget for HU part: 171 mil. EUR

Total: 192 mil. EUR

Interconnector has been supported by financial grant of 30 mil. EUR from the European Energy Programme for Recovery and being shortlisted on the EU Project for Common interest.

European Energy Programme for Recovery

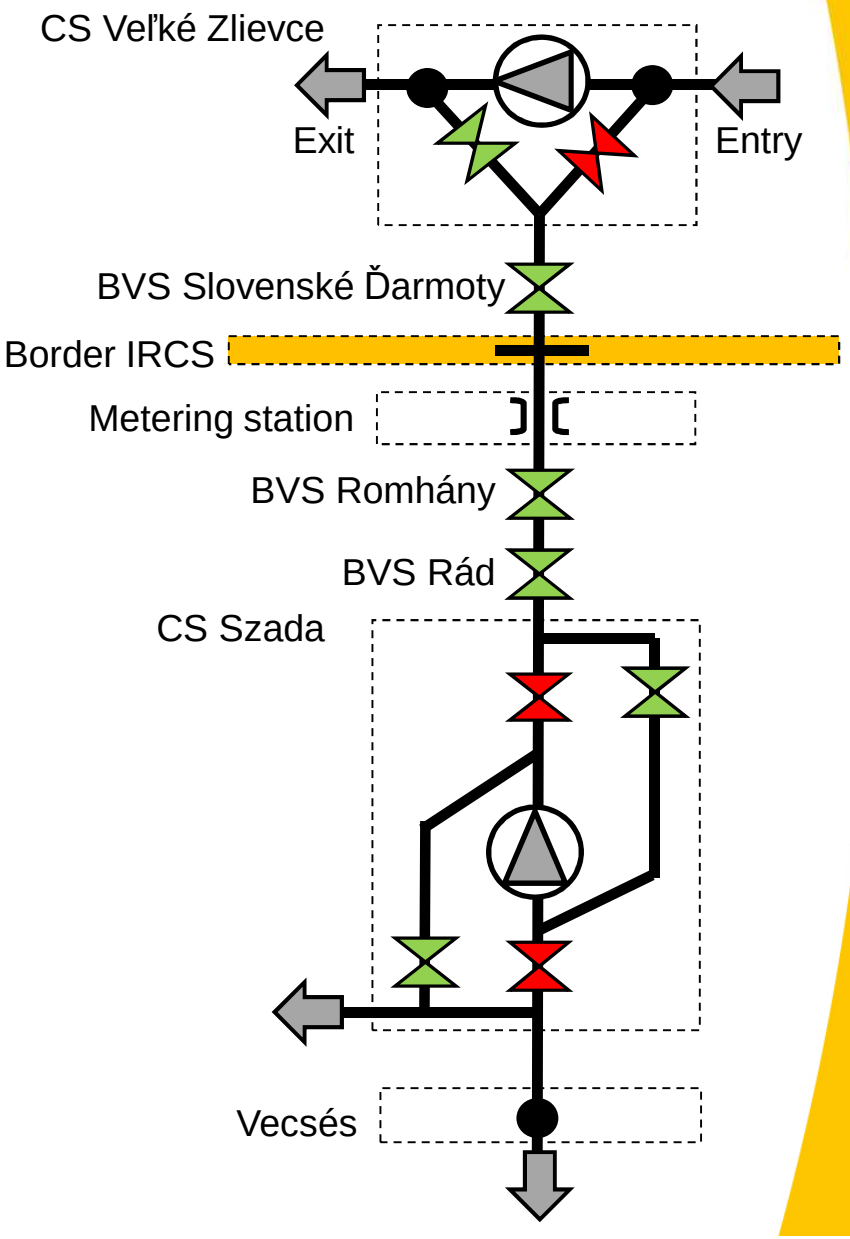
Project Scope

Scope of the Slovak subproject:

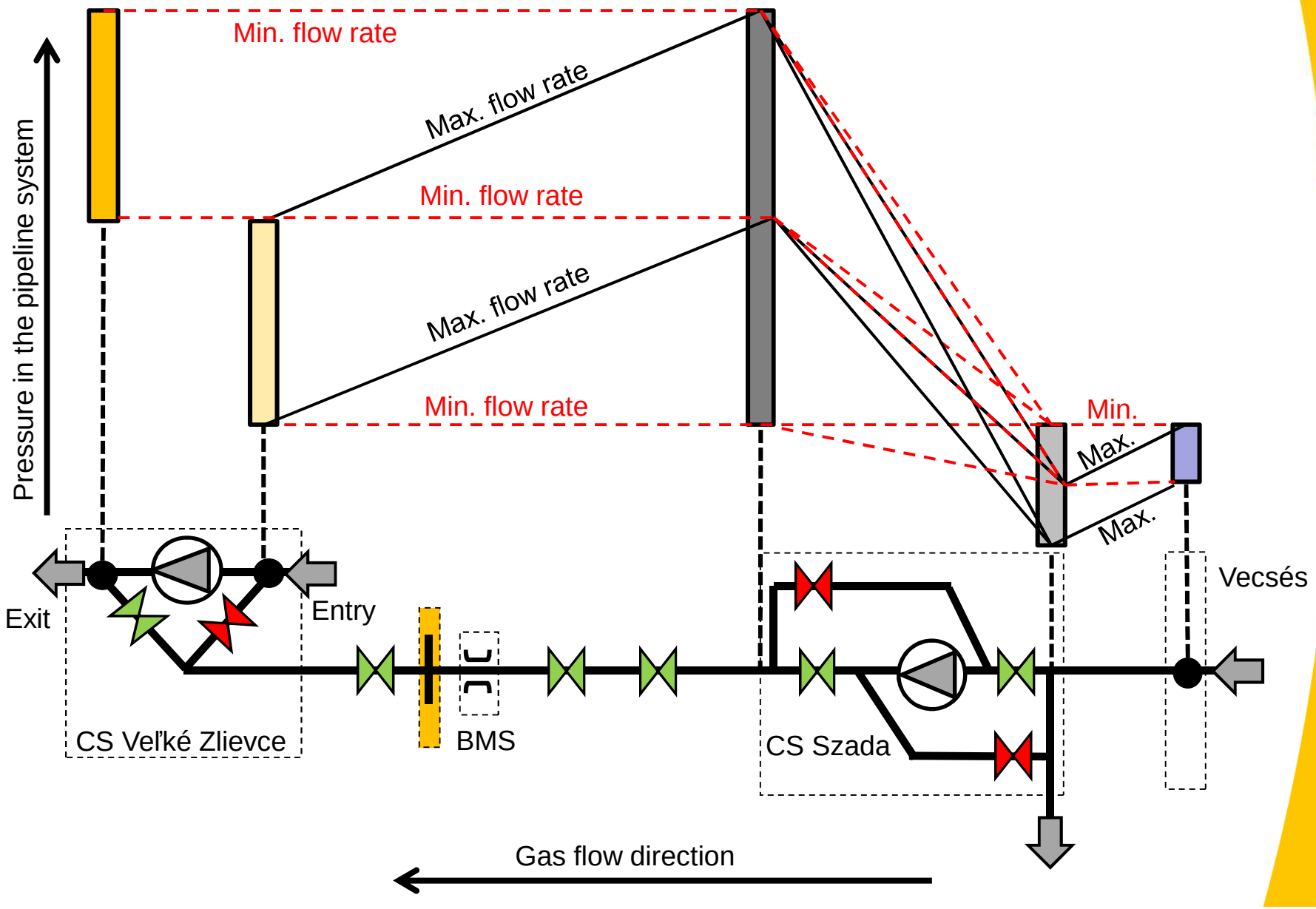
- 19 km pipeline between the existing compressor station Veľké Zlievce and the Ipeľ River Crossing Section (IRCS) at the Slovakia-Hungary border.
- Ball Valve Station (BVS) Slovenské Ďarmoty.
- Cathodic Protection Station close to Slovakia-Hungary border.

Scope of the Hungarian subproject :

- 92 km pipeline on the Hungarian side including the IRCS at the Slovakia-Hungary border.
- Balassagyarmat Metering Station for both countries.
- Two Ball Valve Stations Romhány and Rád.
- New compressor Station at Szada.



Interconnector hydraulics



Support of authorities and politicians

Strategy

To keep high level of interest of authorities to the project and try to gain incentives (regulatory/financial) for the project from the state/EC.

Action points

- Project of the SK-HU Pipeline Interconnector has from the beginning strong support on the political level in both countries.
- Strong political support to the project has been endorsed by signature of the Intergovernmental agreement between governments of Hungary and Slovak republic in early 2011.
- Due to its importance from the regional point of view, the project has also strong support from the European Commission.
- The Interconnector creates a backbone of the North-South Corridor which is a highly important set of infrastructure projects.
- In the 2010, the project of SK-HU Pipeline Interconnector has been supported by financial grant of 30 mil. EUR from the European Energy Programme for Recovery and being shortlisted on the EU Project for Common interest.

Lessons learned

Support from politicians and authorities can have a significant impact on FID and implementation.

Slovak Subproject Milestones

1. Environmental Impact Assessment	August 2010
2. Building permit	March 2012
3. Procurement	November 2012
4. Start of construction works	January 2013
5. Completion of the entry-exit interconnection point at Compressor Station Veľké Zlievce	August 2013
6. Completion of pipeline and its interconnection with the Ipeľ River Crossing Section	November 2013
7. Completion of telemetry and control systems	February 2014
8. Completion and handover of the construction	March 2014
9. Test operation	April/July 2014
10. Commercial operation	January 2015

Slovak Subproject Construction
- pipeline unloading / January 2013

Wind, cold …

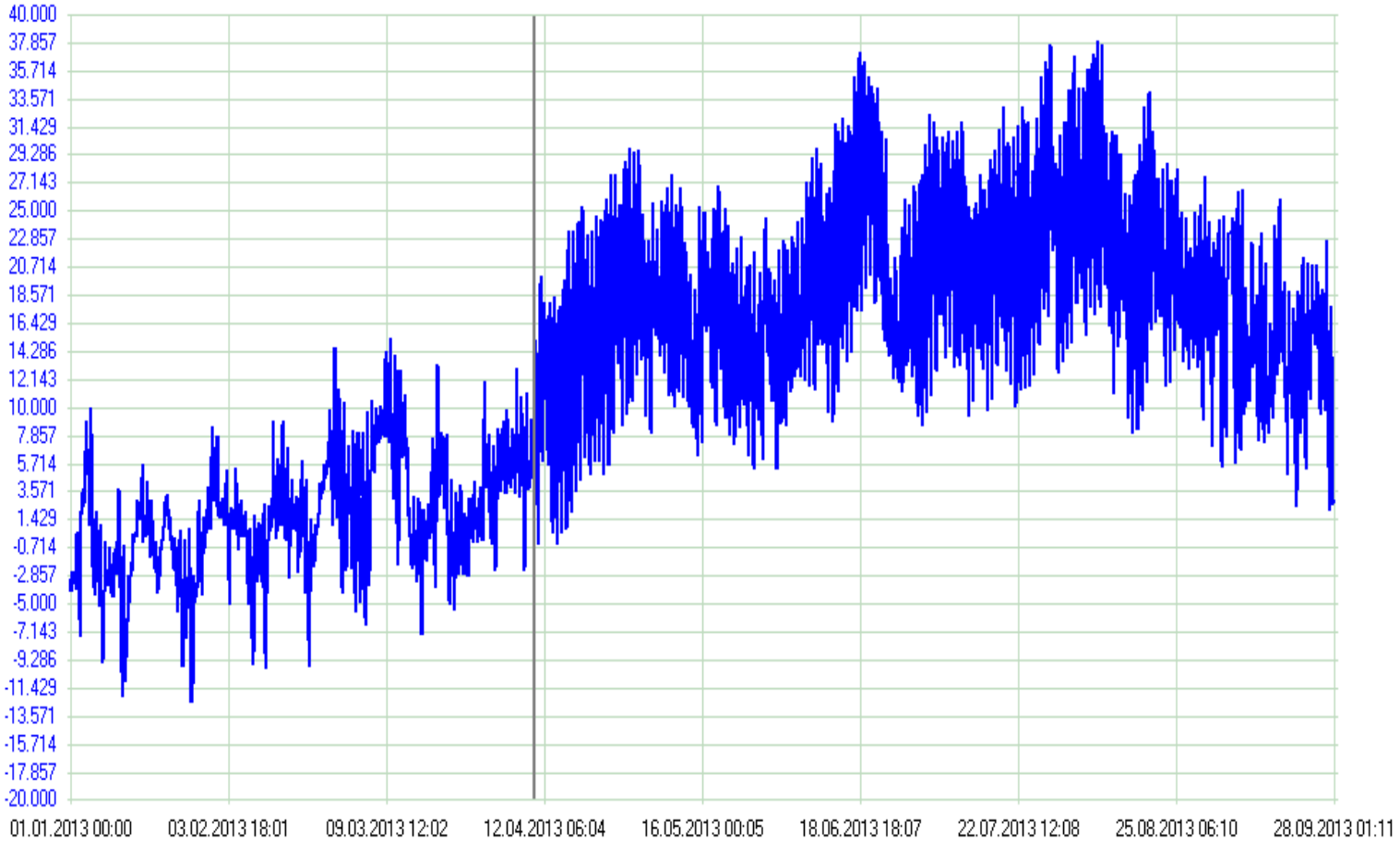
Slovak Subproject Construction
- topsoil strip / February 2013

Sometimes nice weather…

Slovak Subproject Construction
- topsoil strip / February 2013

Sometimes not…

Slovak Subproject Construction
- ambient temperature during year 2013



- During the first three months works were really difficult due to the unfavorable weather conditions.
- The permission process was very complex and comparable to weather.
- Sunny days have improved both.

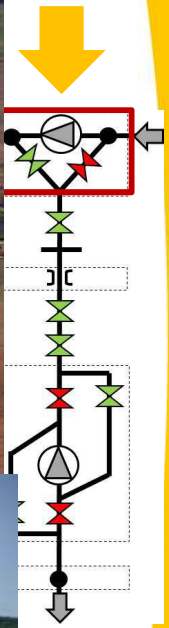
Slovak Subproject Construction
- distribution of pipes on site / March 2013

Slovak Subproject Construction
- bending of pipes / March 2013

Slovak Subproject Construction
- welding / March 2013

First weld on 20th March 2013

Slovak Subproject Construction
- compressor station Veľké Zlievce / April 2013



Interconnection with the existing pipe yard at CS Veľké Zlievce

Slovak Subproject Construction

- Neolithic (4700 – 4200 BC) archeological finds / May 2013

Slovak Subproject Construction
- start of the excavation works / May 2013

Trench, railway crossing and the weather influence

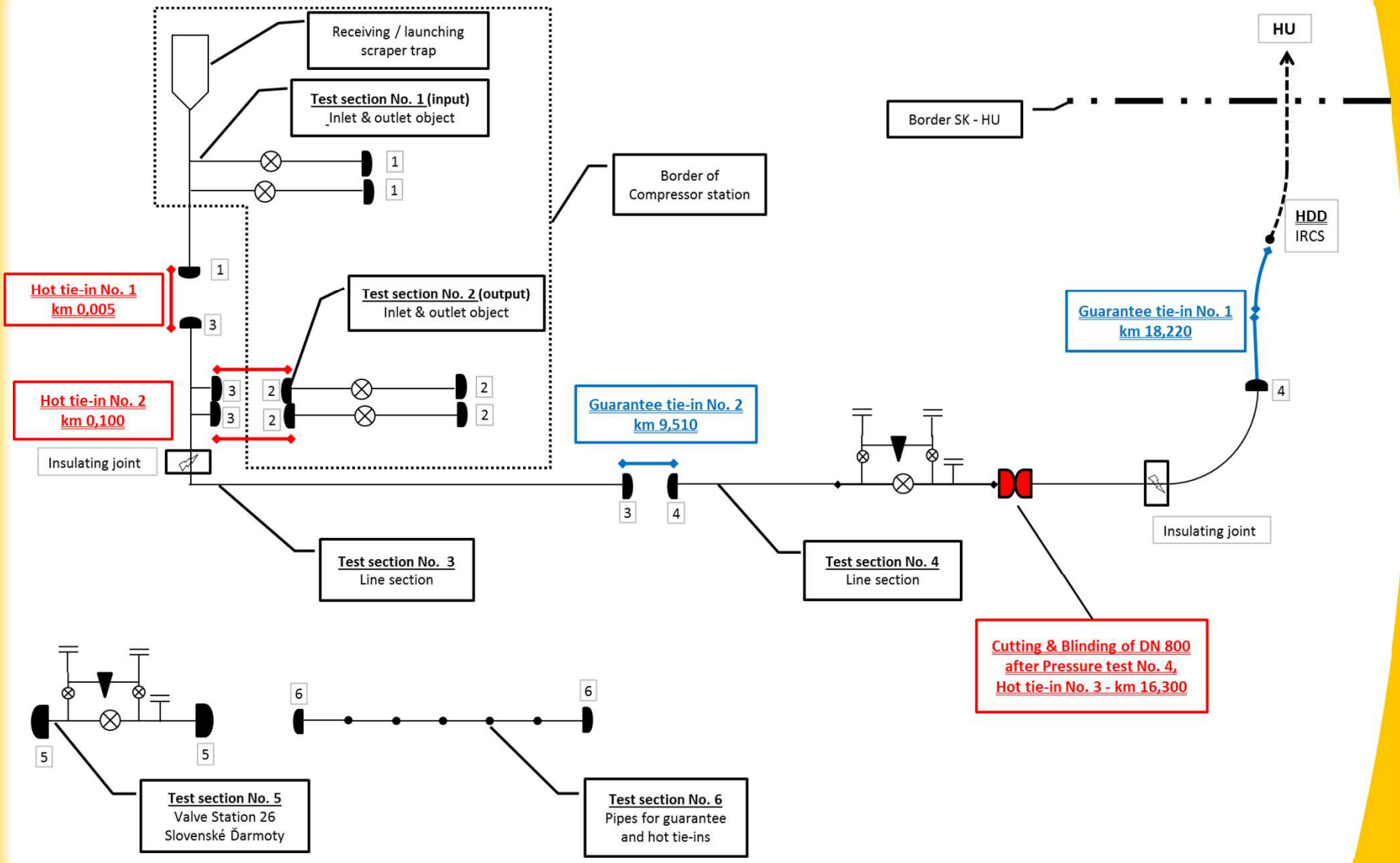
Slovak Subproject Construction
- lowering the pipeline into the trench / May 2013

Slovak Subproject Construction
- trench backfill / May 2013

Slovak Subproject Construction
- pressure tests / June 2013

Pressure test of pipeline was carried out by compressed air.

Slovak Subproject Construction
- pressure tests organization chart / June 2013



Slovak Subproject Construction
- status as of September 2013

Activity	Status
Top soil strip	100%
Pipes distribution	100%
Bending	100%
Welding / sections 1&2	100%
Welding / section 3	99,8%
Welding / sections 4&6	95,5%
Welding / section 5	100%
Excavation	99,3%
Lowering of pipeline	99,3%
Trench backfill	97,5%

Even the doggie from the Neolithic age is smiling – we considered it as a good sign …and it has been proved.