Report of Summer Internship

Visit to Gas compression station and depot gas

Submitted within the framework of

Erasmus Plus Project GOPELC

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20-7-2018

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Romgas is the largest natural gas producer in Romania and one of the largest in Eastern Europe. The company is responsible for producing around 40% of the total natural gas consumption in Romania. Its majority stockholder is the Government of Romania, which owns 70.01%. Fondul Proprietatea owns 14.99%, while the remaining 15% is owned by various shareholders.

The company is specialised in geological research for the discovery of hydrocarbons, production, storage, commercialization and the supply of natural gas and natural gas condensate. Romgas is structured into six branches: two production branches located in Târgu Mureș and Mediaș, one underground storage branch located in Ploiești, a special operations branch located in Mediaş, a maintenance branch located in Târgu Mureș and one international office located in Bratislava, Slovakia.

The visit to Depot gas and compression station

On Friday 13Th of July we visited the depot gas and compression station of Romgas.

One of the most important components of the natural gas transport system is the compressor station. These stations perform the essential tasks of compressing natural gas as it travels through pipelines. It is this compression which allows the gas to continue flowing through the pipe and eventually to its final destination for distribution to refineries and other users.

In Romgas we inject gas during the summer(April-October) since the consumption is low during this season and they extract it during the winter for consumption (heating, cooking, industries, electricity….).

The process of injection involves several steps.

First once the gas arrives at the compression station, it's separated from sand and water in order to benefit from the total capacity of the well.

The purified gas should be compressed in order to be able to inject the highest possible quantity. For this reason, two stage compression are done. In the first stage the pressure reaches around 50 bars. In the second stage it reaches 125 bars. The temperature and the pressure are increased. This increase results in a reduction of the volume based on the ideal gas law (PV=nRT). It is then left 2 weeks in order to equalize the flow then separated from the any oil traces.

The compressed gas will be later sent to 3 groups, and subdivided from each group into 10 wells.

Figure 1-groupe

In a group we can either measure the parameters of the total flow or these of an individual well so we can see that there exist two lines, the first (total line) combining the total flow and a line (measurement line) through which we can isolate an individual well.

During the winter before injecting the gas in the wells it is heated using heaters but during the summer it is not.

Figure 2-Heater

Once the winter begins and the demand for gas increases, the gas is extracted dehydrated in glycol tower. The gas leaving this tower is called dry gas as it doesn't contain water. The content of gas is checked by a gas chromatography test. The gas is essentially formed of methane (around 99.7%) and contains some impurities (>10 microns). It's then sent to a measuring point called fiscal measurement panel and sent to the national transport system (trans gas).

The glycol leaving the glycol tower called rich glycol as it is rich in water, will be later sent to the regeneration tower in order to remove the water traces and to recycle it back into the absorption column.

Figure 3-vertical seperator