

Water Supply of Maedris and environs

Case:	Water Supply of Madris and environs/Switzerland
PE 100+ member:	LyondellBasell
Author:	Volker Lackner
Period:	1998 - 2000
Country/Region:	Switzerland/Europe
Network owner:	Wasserversorgung Maedris/Switzerland
Engineer/Installer:	Gawaplast AG, Neuhausen/Switzerland
Pipe producer:	unknown

In order to maintain the water supply of the municipality of Maedris and environs in the canton of St. Gallen, the headwaters of the mountain range of Hochschwendi had to be redeveloped in 1998. In this area some spring water chambers are led to the collecting well chamber of Hochschwendi, situated at 1315 m above sea level. An old steel pipeline no longer ready for operation which until that time had led the spring water down into the valley had to be replaced by a new pipeline. The Parmort connecting point is situated at 1070 m above sea level so that a difference in altitude of 245 m had to be overcome. A particular challenge in this case was a natural park — it is a moor area of national importance — between the collecting well chamber and the connection point.

Only on special conditions a building permission was obtained. A linear pipe route was not possible due to the arrangement of the individual moor fields so that the new pipeline had to be laid along the moor fields in zigzag. In addition the use of heavyweight construction machines was not admissible.

Apart from quality, another important requirement was the minimum expenditure for pipeline maintenance in order to achieve as low operating cost as possible. No pressure reducing equipment was provided in order to save maintenance cost.

Consequently, the operator of the pipe network decided to use a PE 100 pipeline.

To a large degree easy pipe laying and high flexibility of PE pipes contributed to a careful treatment of environment during the construction period. Pipes were prefabricated up to a length of 200 m and connected by flanges on site. The approx. 230 m long PE 100 pipeline is composed of two pipeline sections (see picture):

- 1. Stage
 - Pipe dimension: 125 mm, SDR 11
 - Pipeline length: 455 m
 - Operating pressure: up to 16 bar
- 2. Stage

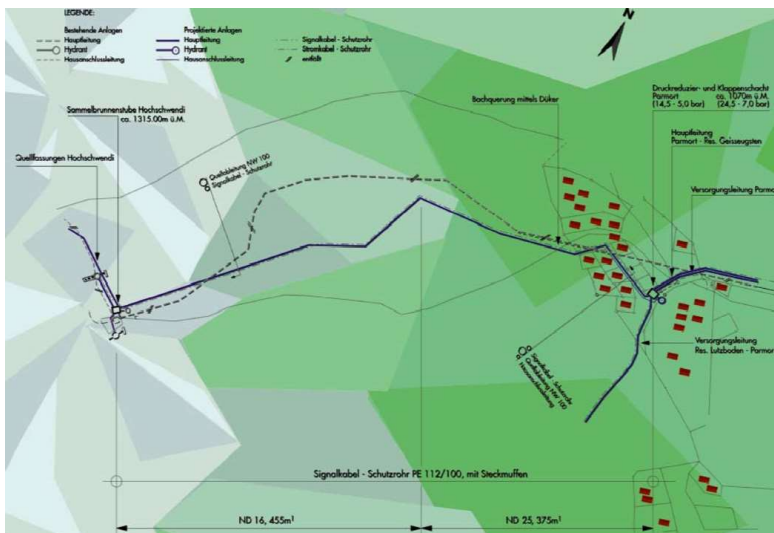
Pipe dimension: 125 mm, SDR 7.4

Pipeline length: 375 m

Operating pressure: up to 25 bar

The choice fell on PE100 as alternative to steel due to a number of advantages the PE 100 provided. A big challenge was the transportation in alpine environment where PE 100 outperformed steel due to its low weight. Another argument for the use of PE 100 was its high flexibility as well as better hydraulic properties.

Owing to the ease of installation in a partly difficult environment the use of PE 100 offered also cost advantages. Eventually the use of PE 100 pipes helped to protect the natural park.



Discharge of spring water Hochschwendi – Parmort, water supply Mädris