REHABILITATION OF A 10 KM LONG ASBESTOS-CEMENT DRINKING WATER TRUNK MAIN IN SPAIN WITH FLEXIBLE RELINING TECHNOLOGY

Jorge Lamazares,
Director Sinzatec Canalizaciones S.L.
ASBESTOS CEMENT PIPE

• Between the 1920’s and into the late 90’s AC pipe was seen as the answer to low cost drinking water network construction

• Thousands of Kilometre's have been installed across the world including Spain where over 40,000 Km's are known to exist in the drinking water networks. A similar amount is considered installed in irrigation networks across the country.

• The Spanish Parliament in March 2017 research to replace all the asbestos pipe from the drinking water networks. This means a huge investment and environmental problems if only digging is selected
OPTIONS AVAILABLE TO REPLACE AC PIPE

- Dig and install a new pipe leaving the old pipe buried
  - High cost
  - Disruption
  - Environmental issue
  - Uncontrolled hazardous

MOST USED BUT RESIDUAL LEGACY
OPTIONS AVAILABLE TO REPLACE AC PIPE

• Dig and install a new pipe and left the old pipe buried

• Dig and remove the AC pipe, installing the new pipe in the same place
  • H&S risks during works
  • Cost
  • Disruption
  • Best environmental solution

LEAST DESIRABLE
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OPTIONS AVAILABLE TO REPLACE AC PIPE

• Dig and install a new pipe and left the old pipe buried

• Dig and remove the AC pipe, installing the new pipe in the same place

• Trenchless technologies
  • Online replacement
  • CIPP
  • PE pipe and Hose Relining
REHABILITATION OF A 10 KM LONG ASBESTOS-CEMENT DRINKING WATER TRUNK MAIN IN SPAIN WITH FLEXIBLE RELINING TECHNOLOGY

• Less cost
• Less noise
• Less disruption
• Concerns with Pipe Bursting
• Pipe relining effective and with no H&S issues
• Environmental benefits
• Pipe or fragments of AC always controlled

MOST DESIRABLE
REOCÍN PROJECT. REHABILITATION OF 10 KM OF AC DN250

• Cantabrian Regional Government investment

• Water supply to a population of 15,000 hab

• Old pipe 50 years old

• The pipe runs through sensitive areas like touristic villages and labour lands close to the Saja river.

• The pipe transport water from the Treatment Plant to the main reservoir

• Operating pressure 6-9 bar
REOCÍN PROJECT. REHABILITATION OF 10 KM OF AC DN250

• First alternative **Dig and relay** new DI pipe DN250

• Investment cost 3,3 MM €

• COST OF PERMITS 0,6 MM €

• TOTAL COST 3,9 MM€

• Permits: 590 private land.

• Estimated construction time 12 months
REOCÍN PROJECT. REHABILITATION OF 10 KM OF AC DN250

- Option with Trenchless. Best option **PRIMUS LINE**
- Investment cost 2,2 MM €
- COST OF PERMITS 6,500 €
- TOTAL COST 2,2 MM €
- Permits: 25 private land.
- Estimated construction time 4 months

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### REOCÍN PROJECT. REHABILITATION OF 10 KM OF AC DN250

<table>
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<td>Estimated construction time</td>
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Trenchless rehabilitation of pressure pipes using the Primus Line® system
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REOCÍN PROJECT. REHABILITATION OF 10 KM OF AC DN250

- Old AC (40 years) pipe DN250 and PVC DN200
- 10,500 m drinking water
- 6-9 Bar operating pressure
- 60 connectors DN250 and 4 DN200
- December 2016-April 2017
- Customer: Gobierno de Cantabria/Dragados
- Leaking pipe
- Renovation with Primus Line DN250 PN15
- Curves and bends
- 19 installation stages, de 200 a 800 m
## Rehabilitation of a 10 km long Asbestos-Cement Drinking Water Trunk Main in Spain with Flexible Relining Technology

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WHY THE CUSTOMER OPTED FOR PRIMUS LINE?

- Standard pipe renovation project usually done with open trench
- Already tested Primus Line in two small jobs
- Avoiding occupation of private lands.
- Global reduction in time and cost.
- Better hydraulic behaviour
- Ideal conditions for PL. Installations longer than 300 m with no connections and medium pressure pipe

CHALLENGES OF THE PROJECT

- Maintaining water service during works.
- Working in AC pipe in long lengths with soft curves
- Existing bends not previously detected. Problems during installation; H&S issues with Asbestos.
¡Muchas gracias por su atención!

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Director Sinzatec Canalizaciones  
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+34-942 585704