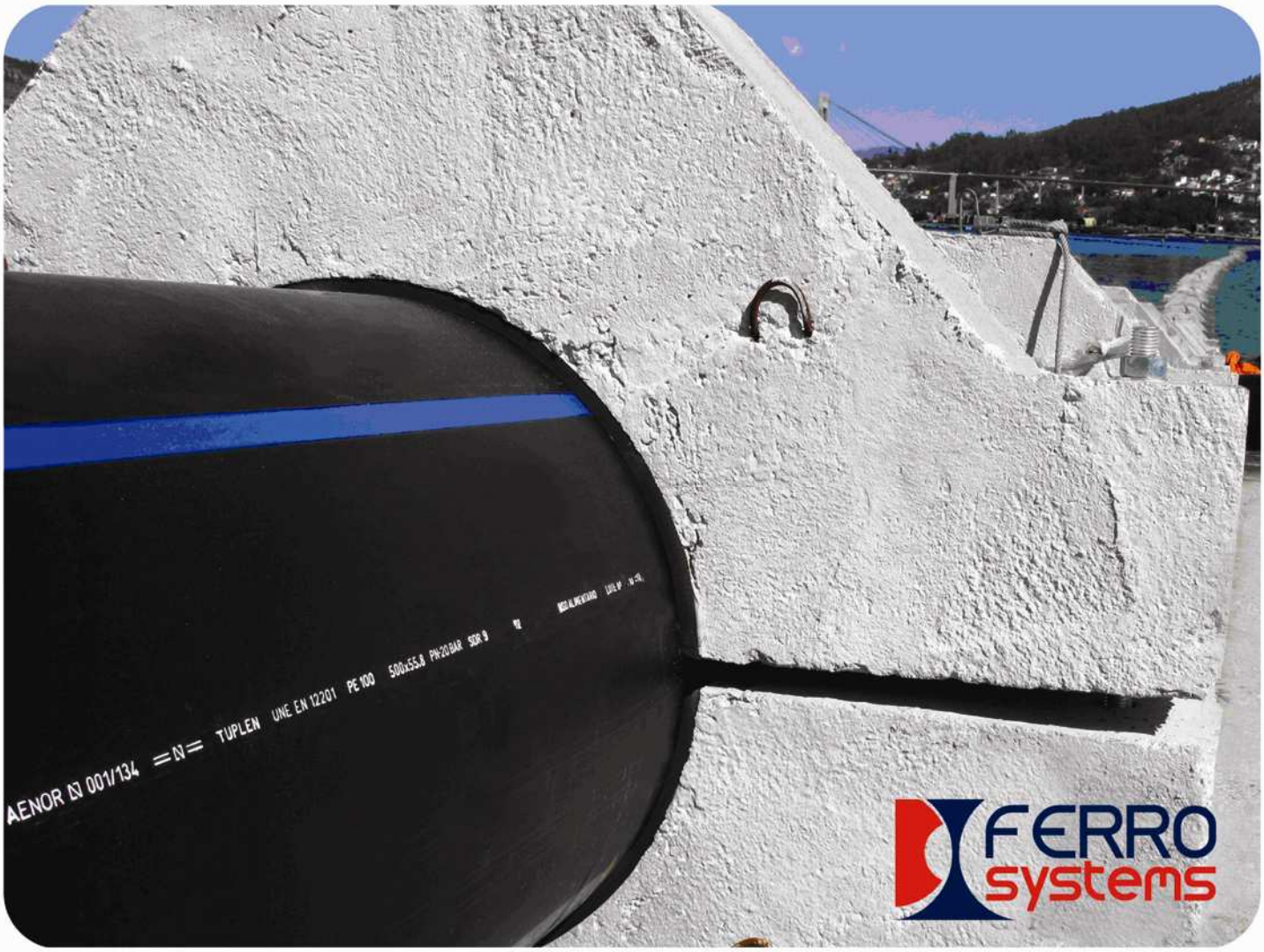


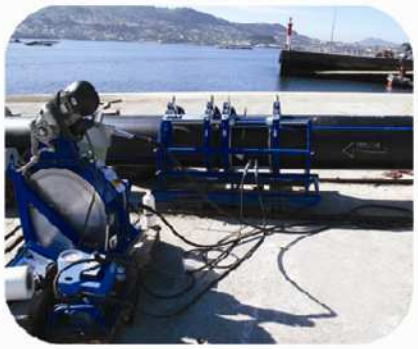
MARINE OUTFALL

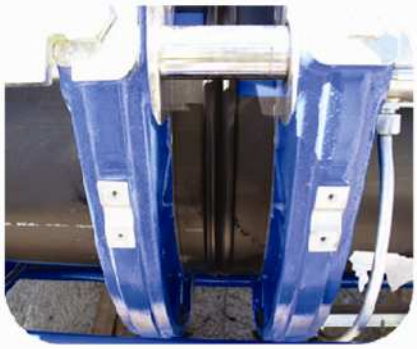
POTABLE WATER SUPPLY TO THE MORRAZO REGION (Pontevedra, Spain)

Client: **UTE MORRAZO (BARDERA- EXCOVER)**
Product: **POLYETHYLENE pipes PE-100, Ø 500/20 ATM.**
Total supplied: **3.800 m**
Sinking end date: **April 2011**
Expected finishing date: **Last quarter 2011**

ASSEMBLY & SINKING STAGES

(1) Polyethylene pipes are **received** and **stocked** at the Domaio Port.





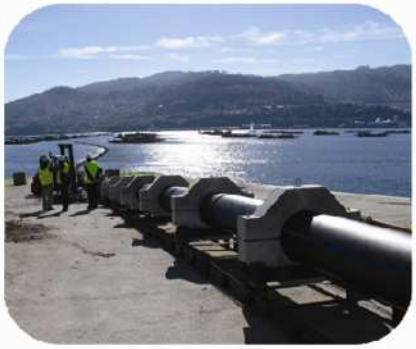
(2) Pipes are welded in **65 m sections** (approximate duration = 1,5 hours per welding).

(3) The 65 m sections are **transferred** with a crane to the ramp area, from which they will be gently pulled down to the sea.

(4) Flanges are placed at the ends of the 65 m sections.

(5) Concrete weights are set every 2,5 m (covered with neoprene so that the pipes are not damaged) over the rails leading to the sea.

WATER SUPPLY TO THE MORRAZO REGION



(6) The 65 m sections are gently **launched** to the sea. During this process they are welded to form new **325 m sections**.

(7) The 325 m sections are transported to the **"waiting zone"**, Moaña beach, until they are picked up. They are anchored and signalled with buoys to avoid damaging nearing boats.

(8) The pipe sunk the previous day is **refloated** and placed on the platform with a crane. The 325 m section brought from Moaña beach is also placed on the same platform.

(9) Both sections are joined together with flanges placed at both ends, and **floats** are attached to them in order to make the sinking process easier.

(10) With the help of a scuba diver, a **pressure gauge** and a **valve** are placed on the pipe end which has not been joined. First of all, pressurised air is introduced until it is balanced with the water pressure.

(11) The injection of potable water is controlled from land (**opening valves**). Once the pressures are balanced at both ends, potable water is injected into the pipe, pushing the pressurised air through the valve.

(12) The pipe is **filled with potable water**, which begins the sinking process up to the end with the flange, through which air from inside the pipe is pushed out. The aim is that sinking takes place with a radius of curvature as broad as possible, in order to prevent the joined parts from suffering during the process.

(13) Once the section has finished sinking, the diver swims down to **recover the floats** and **close the entry/exit of air/water**. The finished section remains sunken until the following day, when the whole process is repeated.