



Taper/Taper adhesive-bonded Joint



## Transport of seawater to an iodine harvesting facility using Bondstrand® GRE Epoxy pipe and fittings

Seawater was needed for an iodine production site located in the Atacama Desert in northern Chile. The pipeline route was from the Port of Mejillones to the Algorta Norte facility, 75 km inland. The site is the dry bed of an ancient lake. The iodine content of the surface soil layer is retained as this desert is identified as the driest place on the face of the Earth.

Iodine, being soluble in water, is usually extracted naturally from soil by rainfall. Since rain is so rare in this area, the iodine content remains. Surface soil is mined and rinsed with the seawater and the iodine converted to a pellet form for later sale. The project has proven to be a complete success and an expansion of the capacity of facility is planned.

### Operating pressure

The pressure in the pipe varied along the route and was at or below the pressure rating of the pipe used in each part of the system. Sea water from the Pacific Ocean was pumped to higher elevations in the foothills of the Andes Mountains. The pressure at the lower elevations was higher due to hydrostatic head pressure. As the elevation increased, toward the next pumping station, the pressure would decrease due to the lower hydrostatic head. The ability to supply different pressure rated pipe along the route was a cost savings to the customer.

### Advantages

NOV Fiber Glass Systems Bondstrand piping was chosen for its corrosion resistance to seawater and its ease of handling, due to light weight, in the rugged terrain of the desert. Slopes along the route exceeded 45° in some places, requiring extended lengths of pipe to be pre-assembled then dragged uphill into place. This area also has many geological fault lines running through it (43 along the course of the line), so the toughness, and flexibility of GRE also came into play.

### Project

Algorta Norte S.A. – Chile

### Client

Algorta Norte S.A. – Chile

### Pipe system

41 of the 75 km of pipeline were installed with Bondstrand Series 3400 Pipe and Fittings using Taper/Taper adhesive joint.

Pipe size: 14 inch (350 mm):

|              |               |
|--------------|---------------|
| 5.800 m PN32 | 8.500 m PN16  |
| 7.600 m PN25 | 15.000 m PN12 |
| 4.200 m PN20 |               |

### Operating conditions

|                  |                           |
|------------------|---------------------------|
| Operating temp:  | (ambient) 10 - 35 °C      |
| Design pressure: | 10 - 32 bar               |
| Design temp:     | 66 °C                     |
| Test pressure:   | 1.3 times design pressure |

### Installation date

Construction began in September 2010 and was completed in November of 2011, including pump stations and all processing equipment at the site.