

# Aquila Field Development

## PROJECT DETAILS:

|                    |                                  |
|--------------------|----------------------------------|
| Location:          | Aquila Field, Adriatic Sea       |
| Contract Value:    | A\$23,000,000                    |
| Contract period:   | February 1996 - February 1998    |
| Safety Statistics: | Man hours: 106,000<br>LTIFR: 9.4 |



## CLIENT: Saipem SpA/AGIP

### Scope of Work:

The Aquila Field Development is a marginal field located in the Adriatic Sea, approximately 46 kilometres east of Brindisi, Southern Italy, in water depths of up to 830 metres. The field was developed by floating production and storage offloading facility (FPSO) Firenze Pruducao de Petroleo Ltd (FFPP) (a joint company of SBM and Saipem) on behalf of AGIP.

The installed field facility consisted of a refurbished 138,000 dead weight tonnage (DWT) FPSO *Firenze* moored at site by an eight legged catenary mooring system. It is connected to two subsea wellheads with flexible risers and umbilicals. Each of the eight installed mooring legs is made up of a combination of Ø95 millimetre chain and Ø102 millimetre wire with a 5 metre diameter x 16.7 metre-long suction pile anchor.

For each of the *Aquila 2* and *Aquila 3* subsea wellheads, a 6 inch and 2.5 inch flexible riser and a four inch electrohydraulic control umbilical were installed in a steep, pliant wave configuration. Buoyancy modules were installed on all risers and umbilicals to obtain the required water column profile. Each riser and umbilical was installed with a pulldown clumpweight attached to maintain the installed configuration.

Installation of the mooring utilised remotely operated vehicle (ROV) mounted suction pump assemblies to draw the suction anchors into the seabed. The suction pumps were developed specifically for this project.

Chain and wire deployment was conducted using a new build chain windlass and 300 tonne linear winch. Tensioning operations were only required for penetration of the suction anchor leader chain and for chain/wire out of straightness tolerance. All tensioning was performed by the MSV *Maxita*.

The FPSO *Firenze* was towed from Arbatax, Sardinia to site using a twin tow arrangement. Once in the field a third positioning vessel was utilised to complete the mooring hookup.

### Scope of work:

Umbilical and riser installation required the development of a unique installation procedure to minimise bending and installation loads on the product. Gravity bases weighing 230 tonnes were suspended from each riser system during deployment by the use of bend vertebrae and spacial winch positioning. This was made possible by the sheer size of the installation vessel, MSV *Maxita*.

AGIP proprietary wellhead termination units were installed on the flexibles and a new pull in system developed between the installation contractor and client to assist both parties. The AGIP SAF (sistema alti fondali) system involved the termination of two risers into one end fitting, which resulted in a dual riser laydown procedure being developed.

The field installation was completed by SaiClo in February 1998. At the time of installation it was the second deepest moored FPSO ever installed.

\* SaiClo was a company equally owned by Saipem S.p.A. of Italy and Clough.

