



### FACTS AT A GLANCE

**Company:** Saipem S.p.A.

**Web site:** [www.saipem.it](http://www.saipem.it)

**Description:** The Saipem Group is a truly global contractor with three global business units: onshore, offshore, and drilling. It is a leader in providing EPIC/EPC services to the oil industry, for both onshore and offshore operations, with a focus on the toughest and most technologically challenging projects. Its drilling services operate in many of the oil and gas industry's hotspots, frequently in synergy with Saipem onshore and offshore activities. In 2008, the company generated US\$14 billion in revenue and \$1.25 billion net profit.

**Employees:** 38,000 worldwide

**Industry:** Oil and Gas

**Country:** Italy

### PRODUCTS USED

- PDS®
- SmartPlant® Spoolgen®

### KEY BENEFITS

- Amount of manual data entry and rework dramatically reduced
- Time to produce data for material management and welding management activities reduced by 80 percent
- Merged graphical and numerical data give fabrication teams a clear picture of what they are going to build
- Quick and easy implementation

## SAIPEM USES SMARTPLANT® SPOOLGEN® TO SEE THE BIG PICTURE IN FABRICATION AND CONSTRUCTION

EPC Chooses Intergraph® to Automate Piping Material Management

### IDENTIFYING GOALS

The Saipem Group is one of the largest international turnkey contractors in the oil and gas industry. Throughout the past 14 years, Saipem engineering centers have used Intergraph PDS to generate isometrics and a variety of proprietary packages in the home office and on the construction site. PDS is a comprehensive, intelligent computer-aided design/engineering (CAD/CAE) application for plant design, construction, and operations.

"Approximately two years ago, we identified the need for software that could automate the complete piping material management process for our construction team," said Ugo Salvi, vice president of information and communication technology at Saipem. "The system would have to cover engineering, fabrication yards, and piping assembly."

Saipem decided to look for an integrated solution that could help it fulfill its goals.

### OVERCOMING CHALLENGES

- Take advantage of PDS data to generate shop drawings
- Drive the activities of planning, material tracking, and construction management with detail work
- Provide weld data to two groups: in-house software for production analysis and quality department for non-destructive testing (NDT) evaluation
- Conduct a daily cross-check between what was made available from engineering through the approved for construction (AFC) document issuing and the working progress at the site, with a special focus on isometric revisions

### REALIZING RESULTS

"We had a variety of objectives to meet by adopting a new solution. The main project goal was to produce shop drawings more easily," said Ulisse Beretta, business application manager at Saipem. "The natural solution was to adopt a package that could take advantage of the data that PDS was already producing to integrate the fabrication activity. That is why we chose SmartPlant Spoolgen."

SmartPlant Spoolgen acts as the bridge between engineering design, fabrication and construction. The software takes isometrics from any design system that supports

ISOGEN® and provides a workflow environment for fabrication and construction information to be added by the appropriate people at the appropriate time for the production of manufacturing drawings and associated reports.

SmartPlant Spoolgen is a system designed specifically for use by companies involved in piping fabrication and construction, and has workflow management built in as standard, ensuring maximum productivity with minimal effort. Using simple editing functionality, users add fabrication and construction information to design isometrics (electronic IDF or PCF data files), before automatically generating all necessary fabrication spool drawings and reports. SmartPlant Spoolgen then automatically produces the required number of spool isometrics for pipe spool manufacture in the fabrication workshop, and erection isometrics, showing pipe spool assembly details, for pipeline construction at the plant.

“The main reasons we chose SmartPlant Spoolgen were that Intergraph’s products were already in use and well-known by our workforce. Globally, there are many skilled personnel available with good construction competencies who can be recruited or subcontracted,” said Beretta. “Plus, we appreciate Intergraph’s world presence and in-depth understanding of engineering and fabrication activities.”

SmartPlant Spoolgen is used by the technical department on-site to produce shop drawings and to generate isometrics with relevant weld information, enabling an overall view for test-pack activities. SmartPlant Spoolgen is tightly linked with proprietary systems for both input and output.

Because SmartPlant Spoolgen has been the only data supplier for welding control and material management, the amount of manual data entry was dramatically reduced. Beretta noted, “For each isometric, the time to produce data for material management and welding management activities has been reduced by 80 percent.”

Saipem decided to implement a number of interfaces to ensure data accuracy. The company uses PDS to generate lists of material to be used for purchasing, and IDF files to feed SmartPlant Spoolgen.

SmartPlant Spoolgen also uses other external sources, such as line list or components index, to merge graphical with numerical data. This gives the fabrication teams a clear picture of what they are going to build.

Saipem heavily relied on outgoing data, such as welding maps and spool-based lists of material, during the entire project. Plus, by having all data centralized, the company was able to completely control the release of new isometrics and revised isometrics. As a result, the amount of rework dramatically decreased.

Intergraph personnel worked with the Saipem home office to develop interfaces between PDS, SmartPlant Spoolgen, and in-house developed legacy software. SmartPlant Spoolgen was fed with external data. There were approximately 5,000 line list records and 6,000 component index records.

“Our first production project was a huge project, but it only took a month to go into production,” said Beretta. “We were pleased with the support we received from Intergraph for both training and setup, including ongoing technical support.”

The project involved 11,500 isometrics leading to 41,500 fabrication spools. Saipem produced 21,000 “assembly spools” (consisting of small bore, valves, etc.) as data to enable complete materials management activities. The system produced all the needed information, such as weld type, diameter, thickness, and piping class. Even with more than 200,000 welds, no data entry was required, which saved time.

## MOVING FORWARD

“We have discovered that for a construction company, using a spooling system to obtain shop drawings is a necessity,” said Beretta.

Saipem is already developing and expanding new functionalities to be applied in an upcoming project. “We want to go further in our implementation to take advantage of all of the information SmartPlant Spoolgen provides,” said Salvi.

## ABOUT INTERGRAPH

Intergraph is the leading global provider of engineering and geospatial software that enables customers to visualize complex data. Businesses and governments in more than 60 countries rely on Intergraph’s industry-specific software to organize vast amounts of data into understandable visual representations and actionable intelligence. Intergraph’s software and services empower customers to build and operate more efficient plants and ships, create intelligent maps, and protect critical infrastructure and millions of people around the world.

Intergraph operates through two divisions: Process, Power & Marine (PP&M) and Security, Government & Infrastructure (SG&I). Intergraph

PP&M provides enterprise engineering software for the design, construction, and operation of plants, ships, and offshore facilities. Intergraph SG&I provides geospatially powered solutions to the defense and intelligence, public safety and security, government, transportation, photogrammetry, utilities, and communications industries.

For more information, visit [www.intergraph.com](http://www.intergraph.com).

