

Integrated Package Delivery

Rig-Equipment Engineering



Reduce risk. Lower costs. Get measurable, improved results on your next project

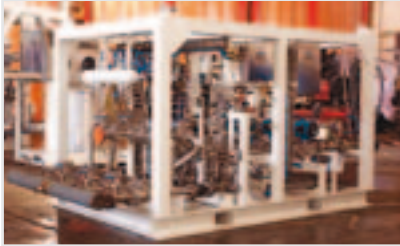
Those are the exact results that the M-I SWACO Integrated Package Delivery (IPD) capabilities deliver through integrated mud mixing, fluids processing, drilling and Drilling Waste Management (DWM). We can apply this integration to our drilling and DWM product lines across the globe, helping you succeed in harsh environments, where extended life requirements of assets and facilities matter most, where QHSE issues demand continual close attention, and where it makes good business sense to reduce spares.

As the world's largest supplier of drilling and completion fluids and drilling waste management equipment, M-I SWACO can take you from flowline to ultimate reuse or disposal as a logical extension of our vast knowledge of fluid technology and management. Our Aberdeen-based IPD organization manages the design, procurement, manufacture, installation and commissioning of custom-built, integrated equipment packages for M-I SWACO operations worldwide. The team also has offices in Houston, Stavanger, Volgograd and Singapore.

What M-I SWACO IPD can do for you

While it is an accepted fact that the use of modern technology can significantly reduce E&P costs, operators and service companies are still faced with the burden of identifying and then applying the optimum technologies for project needs. The decision to evaluate a project in detail from start to finish, followed by strategic management, can help the operator reduce costs and increase operational efficiency.

Our experienced multidisciplinary team delivers integrated packages of equipment for the management of drilling and completion fluids, oil and synthetic-coated drilled cuttings as well as production and well flowback waste streams.



Capabilities with strong advantages for you

Much has changed in our industry, and M-I SWACO has actively embraced the integrated-project concept that has emerged in recent years. To provide customized, value-added solutions with a guarantee of technical integrity and quality of work, our IPD division performs in-depth examination of your project, merging management skills with appropriate technologies. Our scope of equipment and process-control services is configured to serve you first and foremost.

Making technology and engineering work for you

We have learned what is important to you. We've been involved since the 1980s when modifications to equipment were necessary to meet the stringent regulations for North Sea operation. Because we've experienced firsthand the growing sensitivity to QHSE issues associated with rig construction, M-I SWACO has rapidly expanded IPD services to meet ever-increasing demands such as CE/ATEX and Norsok compliance in the North Sea and international standards and country regulations in the Caspian Sea and eastern Russia.

As the economic stakes of drilling and production rise, more operators are taking a second look at project-specific bulk-handling and drilling waste management packages.

It's a way of controlling costs in the face of challenging demands such as:

- Harsh environments
- Extended-life requirements
- Spares reduction
- Environmental regulations
- Health and safety issues

While we design, engineer and manufacture equipment to suit your needs, the team also works to reduce costs through commonality of materials and spares in addition to providing consistent documentation. Clients around the world have discovered that the benefits from IPD services, such as improved safety, regulatory compliance, reduced costs and improved overall efficiency offset all upfront requirements.

Features and advantages

- Meet goals faster and more efficiently through informed, up-to-the-minute engineering decisions
- Achieve higher-quality results from improved project insight
- Maximize the drilling fluids program through detailed engineering equipment design and process
- Reduce non-productive time through remote control and monitoring
- Mitigate QHSE incidents through preliminary planning, removal of personnel from hazardous environments and consistent documentation
- Realize gains from strategically located M-I SWACO IPD networks

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The M-I SWACO Integrated Package Delivery group is dedicated to producing project-specific, fit-for-purpose equipment packages, including drilling waste management and mud-mixing systems, for new and refurbished drilling installations.

Integrated controls deliver improved safety, efficiency and economics

Human-Machine Interface (HMI) systems are becoming increasingly common features in modern drilling installations. They can be designed to operate in standalone mode, or can be integrated into the drilling-rig manufacturers' other control systems. The outputs from these systems, including alarms, are available to the operator, driller, and loggers and M-I SWACO personnel.

HMI systems allow operators to set performance parameters, or preset timed operations, for equipment that previously had to be manually operated and monitored. Benefits include a significantly improved working environment, keeping workers out of potentially hazardous environments, reducing personnel requirements, and improving equipment performance.

We use systems-control hardware and software that enables remote control

and monitoring of all our main equipment packages. Reliable remote monitoring from either shore-based or corporate facilities is a growing reality.

Benefits now being witnessed by various global operators include:

- Improved operating safety from remote control
- Efficient equipment adjustment and control
- Efficient mixing and blending of chemicals into mud systems
- Minimal exposure of personnel to potentially hazardous areas through remote detection of equipment failure or inoperability
- Reduced onsite personnel requirement as a result of remote diagnostics

Smoother operations begin with project-specific documentation

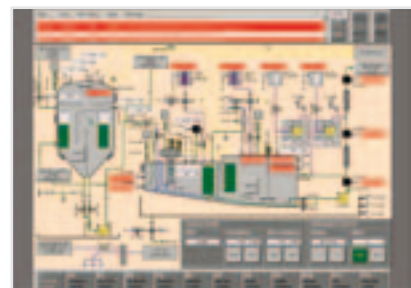
Documentation becomes particularly important toward helping equipment operators get the most from the systems

we design, build and manufacture.

To address this issue, another core activity of the IPD team is to produce project-specific documentation that accompanies each of the packages.

We provide:

- A Supplier Master Documentation Schedule (SMDS) that can include up to 600 documents for complex projects
- A data-collection tool that captures information of every tag detail within the scope of supply
- Project-specific user manuals
- Project-assurance manuals



Maximum value on location

Take advantage of our global reach. We have operations in the U.S., Europe, the Middle East, Africa and the Asia Pacific region. Each regional base offers our full range of services to meet your local project requirements.

We recognize that our clients are searching for solutions to meet the needs of projects with a multicountry profile. Take the next step in fluids assurance and solids control. Seamless operations from technical integrity and quality are the result of these high-performance engineering packages.

A wide range of integrated services that deliver measurable, on-time results to your bottom line

Technical Expertise

- Multi-disciplined team approach
- Project management
- Detailed engineering and design
- 3-D solid modeling and Computational Fluid Dynamics (CFD)
- Development of manufacturers' equipment and systems
- Fabrication and package integration
- System testing and mechanical completion
- Integration with rig/platform drilling-control and -monitoring system
- Installation and commissioning
- Training and technical support
- ISO9001 and 14001 approved

Integrated Systems

- Solids control
- Drilling waste management
- Cuttings re-injection
- Cuttings transport and storage
- Cuttings dryers
- Mud mixing and bulk handling
- Programmable Logic Controller (PLC) control systems
- ENVIROCENTER[®] facilities
- Cuttings treatment
- Water treatment
- Thermal treatment
- H₂S well test cleanup
- Modular DWM design capabilities
- Total fluids and DWM integration

PLC Control Systems

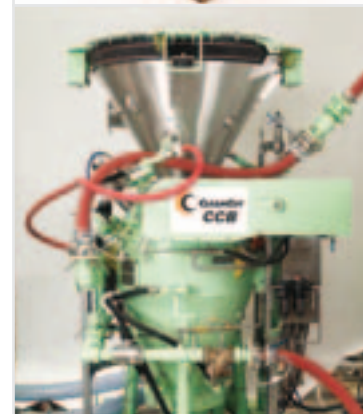
- Control system design and development
- Application programming
 - Siemens[^] S7 300[^] series
 - Profibus communications
- HMI SCADA systems
 - Cimplicity Plant Edition[^]
- Control-philosophy development
- Design and manufacture of control equipment
- HMI screen presentation

System Design Capabilities

- Design and supply of customized control systems
- Hazardous-area equipment design
- PLC applications
- Instrumentation
- Embedded microcontrollers
- Remote diagnostics

Services

- Process automation
- Project management
- Design consultancy
- Product development
- Equipment evaluation
- Feasibility studies
- Training simulators



[^]Siemens and S7 300 Series are marks of Siemens Aktiengesellschaft Corporation.

[^]Cimplicity Plant Edition is a mark of GE Fanuc Automation.