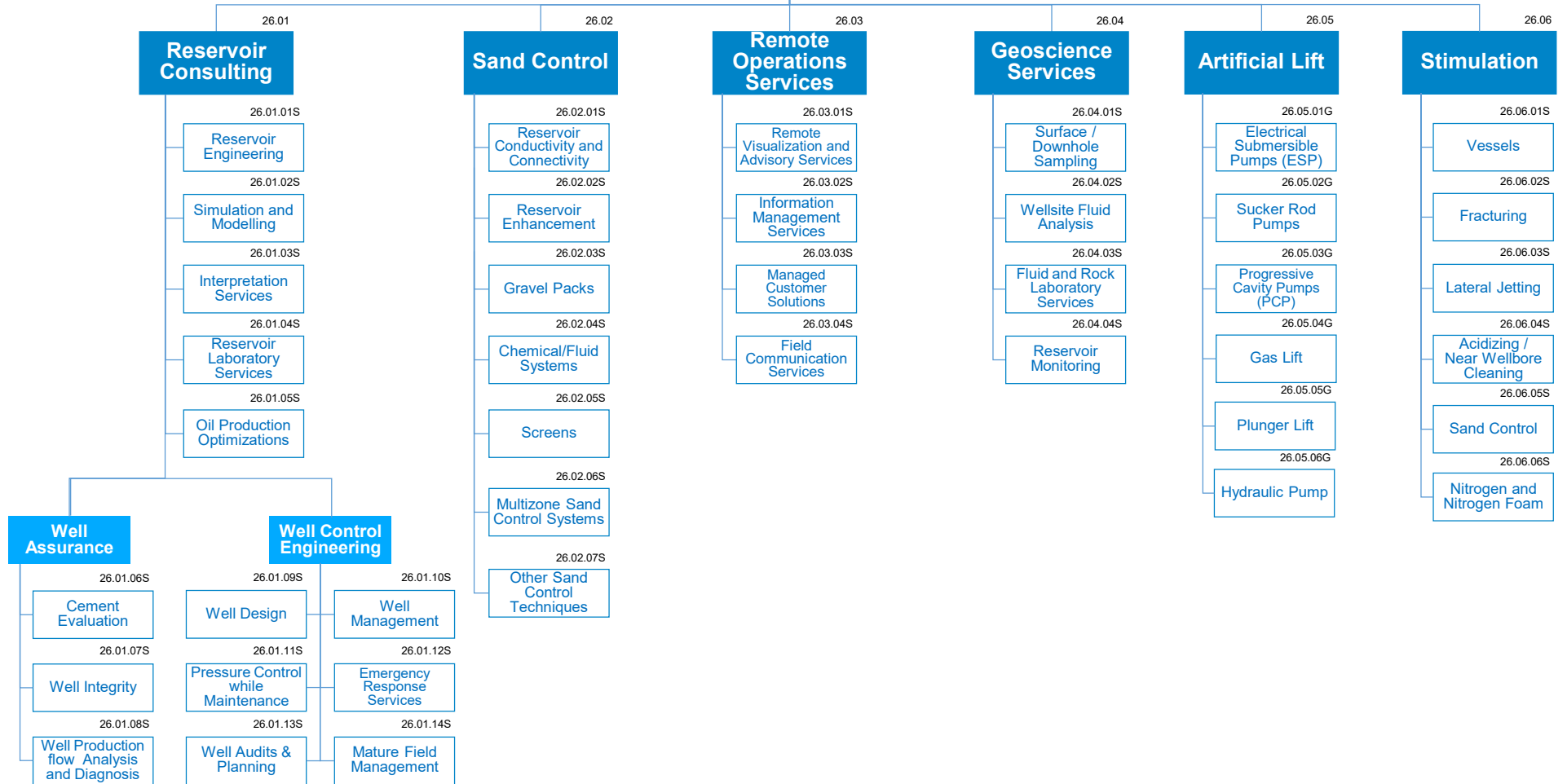


Reservoir Management



Reservoir Management

This category groups includes all services used during the operations of production, decay and abandonment of a reservoir, annexed activities as well as equipment rental or selling.

Products and services related to previous stages than production can be found in groups 25 (Exploration), 27(Drilling Equipment) 28(Drilling Services) and 29 (Well Completion).

MAIN RATIONALES BEHIND THE STANDARD CATEGORIZATION

Reservoir Consulting

- Refers to the group of services that monitor and analyse the reservoir during its life.
- “Reservoir Engineering” Includes activities such as completions and production engineering.
- Well Assurance details the support services during drilling such as “Cement Evaluation”, “Well Integrity” and “Well Production and flow Analysis”.
- “Well production analysis and Diagnosis” Includes well control assessment activity.
- Well Control Engineering includes related activities from design to the emergency response during drilling.

Geoscience Services

- Refers to the services that analyse the reservoir conditions during its productive life.
- “Surface / Downhole Sampling” refers to sampling services to capture reservoir fluid samples at reservoir conditions. This category includes all surface and downhole sampling techniques (SCAR, openhole MDT, Gas Sample Bottle...).
- Fluid and Rock Laboratory Services refers to the studies of the well’s rocks and fluids performed in a laboratory
- Reservoir Monitoring refers to the collection and data management of the reservoir during production.

Sand Control

- During the production phase and according to the characteristics of the reservoir, it is possible to find precipitates that can cause problems to the extraction pipes and equipment, these sands and waxes must be controlled through the categories in this family.
- “Chemical/Fluid Systems” includes Acid Systems, Chemical Fluid Loss Control, Filter Cake Breaker, and Formation / Proppant Stabilization.
- “Gravel Pack refers to the services of performing the control while monitoring the conditions at the well.
- “Other Sand Control Techniques” include Water Packs, Slurry Packs and Resin injection.

Artificial Lift

- Refers to the goods provided to when it is needed additional pressure to extract fluids from a reservoir.
- “Electrical Submersible Pumps”, “Sucker Rod Pumps” and “Progressive Cavity Pumps” and “Hydraulic Pumps” are separated from the Group 08 “Pumps” due to the specificity of this pumps for increasing flow of liquids from a production well
- “Gas Lift” and “Plunger Lift” are also added to this category in addition to the other pumping options

Remote Operations Services

- The services typically provided by the “Artificial lift” Suppliers to monitor and control online the features of the device in the bottom of the well.
- This family covers all related services needed to execute operations remotely to reduce the security concerns of the personnel and to gather a better understanding of the well activity including “Field Communication Services”

Stimulation

- Refers to the activities performed to improve the fluid production rate of a well / reservoir.
- The listed categories are the most common and performed activities for Stimulation.
- “Sand Control” is included and refers to the execution of the stimulation activity.
- Lateral Jetting refers to the stimulation using water control systems or techniques.
- “Fracturing” in this family refers to the Stimulation service and not to the engineering service for Exploration activities
- Acidizing or acidification refers to the injection of acid blends and techniques for well stimulation.