



WELL ABANDONMENT

From late-life reservoir management to permanent abandonment and post abandonment monitoring, we create bespoke solutions to meet your specific well requirements.

LATE-LIFE RESERVOIR MANAGEMENT

The cost implications of abandoning wells is driving operators to maximise oil recovery from existing wells. Aging wells present complex issues and it is vital to effectively plan the late-life asset operations to realise the economic potential of the well prior to full decommissioning. Expro provides remedial well operations that are necessary to optimise or enhance production, prior to abandonment.

Candidate well selection

We support our clients in providing the right information, at the right time, to make their abandonment decisions.

Expro regularly assists clients in determining the economics of well operation, including information relating to revenue generation and operating costs.

- Production forecasting
- Well integrity assessment and remedial well operations
- Well maintenance and interventions
- Reservoir monitoring and data acquisition

Production optimisation

Working with customers, Expro maximises the production from wells in later life, revitalising them to overcome system limitations. This requires a comprehensive understanding of reservoir, wellbore and surface process facilities and pipelines.

Our service combines Expro's wealth of experience in providing:

- Subsurface and reservoir engineering
- Production technology
- Surface process engineering
- Well intervention and remediation
- Temporary late-life production facilities

Well abandonment design

Expro understand our client's challenges associated with re-entry and abandonment of an aging well. This includes safety, environmental and legislative requirements to permanently isolate the reservoir, wellbore and remediate the well location.

We will design a tailor-made plan that ensures minimum cost and maximum operational efficiency:

- Well integrity assessment
- Regulatory consents and applications
- Well abandonment programme creation
- Time and cost estimates

PERMANENT RESERVOIR ABANDONMENT

Prior to the removal of topside and seabed facilities, individual wells must be made safe, reservoirs isolated and permanent barriers installed throughout the wellbore. We understand that reservoir abandonment accounts for a significant proportion of the overall abandonment costs. Our approach to reservoir abandonment offers significant time and cost savings.

Reservoir isolation

Involves restoring the cap rock where all permeable zones penetrated by the well are isolated by permanent barriers, typically mechanical bridge plugs are set and topped by cement plugs. Barrier verification is required before final abandonment.

- Tubular/casing string integrity checks
- Tubular/casing string preparation for barriers
- Installation of permanent barriers
- Independent (direction of flow) barrier verification

Wellbore and wellhead remediation

Intermediate well abandonment may require annuli between casing strings to be tested for integrity, partially removed through milling or completely removed, prior to placement of permanent barriers within the well bore.

- Wellhead removal and re-certification
- Tubular/casing perforating
- Tubular/casing cutting
- Tubular/casing removal

Hydrocarbon free facility

Prior to final decommissioning the facility must be made safe and hydrocarbon free. The reservoirs are isolated and well bores plugged back, facilities and pipelines are flushed in preparation for deconstruction activities.

- Hydrocarbon handled through temporary mobile production equipment
- Facilities/flow lines isolated from wells
- Facility/pipeline deconstruction
- Site remediation

POST ABANDONMENT MONITORING

Once the well has been successfully abandoned it is important to monitor the long term integrity of permanent barriers.

SafeWells™ management system

Expro's well integrity engineering and data management software has been developed to support our customers in managing well integrity. This includes assessing associated risk from the installation of a new completion, through to its eventual abandonment.

SafeWells can be used for the following activities:

- Well planning and construction
- Production operations well integrity
- Candidate selection and well intervention
- Abandonment recording
- Post-abandonment surveillance

CaTS™ downhole wireless monitoring system

Expro's wireless communications technology makes it possible to monitor the pressure and temperature in suspended or permanently abandoned wells.

The key features and benefits of CaTS include:

- Verify barriers in real time during barrier placement and differential pressure testing
- Long term observation of the recharge in reservoir pressure
- Not influenced by cement or bridge plugs
- Downhole data is stored to a battery powered receiver
- Data recovery is possible beyond wellhead severance

