

Successful Zonal Isolation in an Abandoned Well with Composite Plugs at Western Pre-Caspian Kazakhstan

Overview

An aging onshore oil well in the Western Pre-Caspian required permanent abandonment due to poor zonal isolation, risking gas migration into freshwater aquifers. Wuxi Saiketu New Materials Technology Co., Ltd (Thankful Material) designed and executed a cost-effective abandonment plan using composite bridge plugs, ensuring long-term well integrity. Isolation success – No sustained casing pressure (SCP) post-abandonment. Cost savings vs traditional cast iron plugs (reduced drill-out time).

Our Approach

Parameter	Details
Well Type	Vertical Onshore Abandonment Well
Problem Zones	Depleted oil zone (8,000–8,200 ft), Gas zone (4,500–4,700 ft)
Primary Risk	Gas migration due to poor cement behind 7" casing

Pre-Abandonment Findings

CBL/VDL Logs: Weak cement at 7,900–8,300 ft and 4,400–4,800 ft.
Noise Survey: Active gas flow behind casing.

Step 1: Plug Strategy Design

Composite Plugs (Drillable, high-pressure rated).
Cement Cap (Secondary barrier).

Barrier Type	Depth (ft)	Tool Used
Composite Plug	8,500	Thankful Material Composite Plug™

Step 2: Execution

Plug 1 (8,300 ft) – Set via wireline, pressure-tested to 3,000 psi.
Plug 2 (8,000 ft) – Installed as backup, topped with 200 ft cement.
Plug 3 (4,600 ft) – Plug for shallow zone isolation.
Final Cementing – Pumped from 4,500 ft to surface.

Step 3: Verification

Ultrasonic Imaging (USIT) confirmed plug integrity.
72-hour pressure test – Zero surface pressure buildup.

Value to Customer

Thankful Material's engineered composite plug solution provided a reliable, cost-effective, and regulator-approved abandonment strategy. By combining high-performance plugs and optimized cementing, we ensured permanent zonal isolation while saving the customer time and money. Practice has proved that the Composite plug is reliably for zonal Isolation in an Abandoned Well.

Patented Composite Plug Technology – Faster drill-out, better sealing



Thankful material provides field-proven, reliable double slip soluble plugs.

LOCATION

Western Pre-Caspian Kazakhstan

OUR PRODUCTS

88 mm Composite bridge plug
Nominal OD = 88 mm
Nominal ID = 30 mm
Length = 478 mm
Weight = 4.5 Kg
Kava embedding = Ceramic Grain
Applicable casing with maximum steel grade = TP140
Differential Pressure Grade (MPa) = 70
Applicable temperature = 80-150°C
Setting Tool = Baker#10

WELL TYPE

Vertical Onshore Abandonment Well

DEPTH

8,500 ft

