

3.1.2 Check list of preliminary investigations

(Houben & Treskatis 2020)

	INVESTIGATION	METHOD
1.	Assessment of current well performance	Step-discharge test
2.	Evaluation of yield development and remaining capacity since the latest rehabilitation	Monitoring or step-discharge test data
3.	Assessment of structural condition	Camera inspection
4.	Geochemical analysis of incrustation	Mineralogical examination
5.	Verification of current status vs. target status based on geological log and technical drawings: – position of screens – casing diameter – type of annular filling	Camera inspection or geophysical investigation
6.	Verification of intactness of annular seals in deep wells in confined aquifers covered by aquitards. Should annular seals be defect or missing, they have to be installed according to appropriate constructional measures. Defect annular seals enhance well ageing and minimize achieved rehabilitation results by mixed raw waters and infiltration of microbiological contamination.	Borehole geophysics
7.	Verification of pipe collar connection. Sealing by sleeve pipes or couplings provide an improvement.	Borehole geophysics
8.	Verification of intactness of annular filling along the screen (no bridging).	Borehole geophysics
9.	Compilation of flow profile and assessment of porosity in the adjacent formation.	Packer flowmeter
10.	Measurement of wall thickness of old steel casings to identify the degree of corrosion (rusting through) and leakages in order to avoid hazards (collapse) during rehabilitation and subsequent operation.	Borehole geophysics
11.	Verification of the physical condition of the gravel pack (compaction, colmatation, fine grains) if yield decrease excessive.	Borehole geophysics
12.	Decision on profitability of planned rehabilitation based on well performance, structural state and the results of geophysical investigations.	Profitability calculation (Cost of rehabilitation, construction of new well, operation time etc.)