



# Step Rate Test & MWHIP Checklist

For Alberta, British Columbia, and Saskatchewan injection/disposal pressure reviews

## Use of this checklist

This checklist is intended as a simple project-planning and QA/QC tool for step rate test interpretation and MWHIP calculations. Confirm current regulatory requirements before submission. Keep the calculation package, assumptions, plots, and source data together.

### 1. Project Basics

Done	Checklist item	Notes
<input type="checkbox"/>	Confirm jurisdiction: Alberta, British Columbia, or Saskatchewan.	
<input type="checkbox"/>	Confirm project type: EOR, disposal, waterflood, acid gas, CO <sub>2</sub> , or other injection project.	
<input type="checkbox"/>	Confirm well/UWI, scheme approval or application number, and injection/disposal formation.	
<input type="checkbox"/>	Confirm top perforation TVD, base perforation TVD, and calculation depth reference.	
<input type="checkbox"/>	Confirm proposed fluid type, fluid gradient, expected injection rate, and requested MWHIP.	

### 2. Test / Data Availability

Done	Checklist item	Notes
<input type="checkbox"/>	Confirm whether a valid step rate test, in-situ stress test, DFIT/mini-frac, or reliable offset data is available.	
<input type="checkbox"/>	If no test data are available, identify the applicable default method (Alberta Appendix O, BCER fracture gradient maps, or Saskatchewan default formula).	
<input type="checkbox"/>	Confirm raw test data are available: rate, pressure, elapsed time, fluid properties, and wellbore configuration.	
<input type="checkbox"/>	Confirm whether continuous pressure and rate data were recorded and saved.	

### 3. Step Rate Test Quality Review

Done	Checklist item	Notes
<input type="checkbox"/>	Well was stabilized before the test, or the pre-test condition is clearly described.	
<input type="checkbox"/>	First injection step was long enough to overcome wellbore storage.	
<input type="checkbox"/>	At least five rate steps were collected, where using Directive 065 Appendix O as guidance.	



Done	Checklist item	Notes
<input type="checkbox"/>	At least two points above interpreted fracture/parting pressure are available, where applicable.	
<input type="checkbox"/>	Pressure-rate plot shows a defensible change in slope or the lack of a clear break is explained.	
<input type="checkbox"/>	Potential issues were considered: wellbore storage, skin changes, pre-existing fractures, and prior hydraulic fracturing.	

#### 4. Jurisdiction-Specific Calculation Check

Done	Checklist item	Notes
<input type="checkbox"/>	Alberta EOR: confirm whether basis is Appendix O, conclusive test, in-situ stress test, reliable analog, or 8 x TVD.	
<input type="checkbox"/>	Alberta disposal: convert wellhead data to sandface/bottomhole pressure before interpreting fracture/parting pressure.	
<input type="checkbox"/>	Alberta Appendix O: apply fluid-gradient correction if actual fluid gradient differs from 10.52 kPa/m.	
<input type="checkbox"/>	British Columbia: calculate $P_{Wellhead} = [PISIP \times 0.9] - P_{Hyd} + P_{Friction}$ .	
<input type="checkbox"/>	British Columbia: confirm PISIP source, hydrostatic gradient, and friction loss (200 kPa or project-specific).	
<input type="checkbox"/>	Saskatchewan: use fracture-pressure formula or default formula $MWHIP = TVD \times (18.1 - \text{fluid gradient})$ .	

#### 5. Calculation QA/QC

Done	Checklist item	Notes
<input type="checkbox"/>	Units are consistent throughout (kPa or kPag; m TVD; kPa/m).	
<input type="checkbox"/>	Hydrostatic pressure is calculated from the correct depth and fluid gradient.	
<input type="checkbox"/>	Friction loss is included where required or documented as not material.	
<input type="checkbox"/>	Safety factor is documented and consistent with the applicable jurisdiction.	
<input type="checkbox"/>	Final recommended MWHIP is rounded consistently and does not exceed the calculated limit.	
<input type="checkbox"/>	Calculation package has been independently reviewed.	

#### 6. Deliverables

Done	Checklist item	Notes
<input type="checkbox"/>	Pressure-rate plot included.	



## BENOIT REGULATORY | STEP RATE TEST & MWHIP CHECKLIST

Done	Checklist item	Notes
[ ]	Raw data table included.	
[ ]	Calculation sheet included.	
[ ]	Assumptions and data sources listed.	
[ ]	Recommended MWHIP clearly stated.	
[ ]	Regulatory source references included.	

### Source References

- AER Directive 065, Appendix O - Step Rate Test Procedure and MWHIP table.
- BCER Water Service Wells Summary Information - Appendix A MWHIP calculation.
- Saskatchewan Directive PNG008 - Disposal and Injection Well Requirements, Appendix 3 MWHIP formulas.
- SPE 16798 - Systematic Design and Analysis of Step-Rate Tests to Determine Formation Parting Pressure.