



Challenges and Breakthroughs in Downhole Technologies: From Plugging to Long-term Monitoring

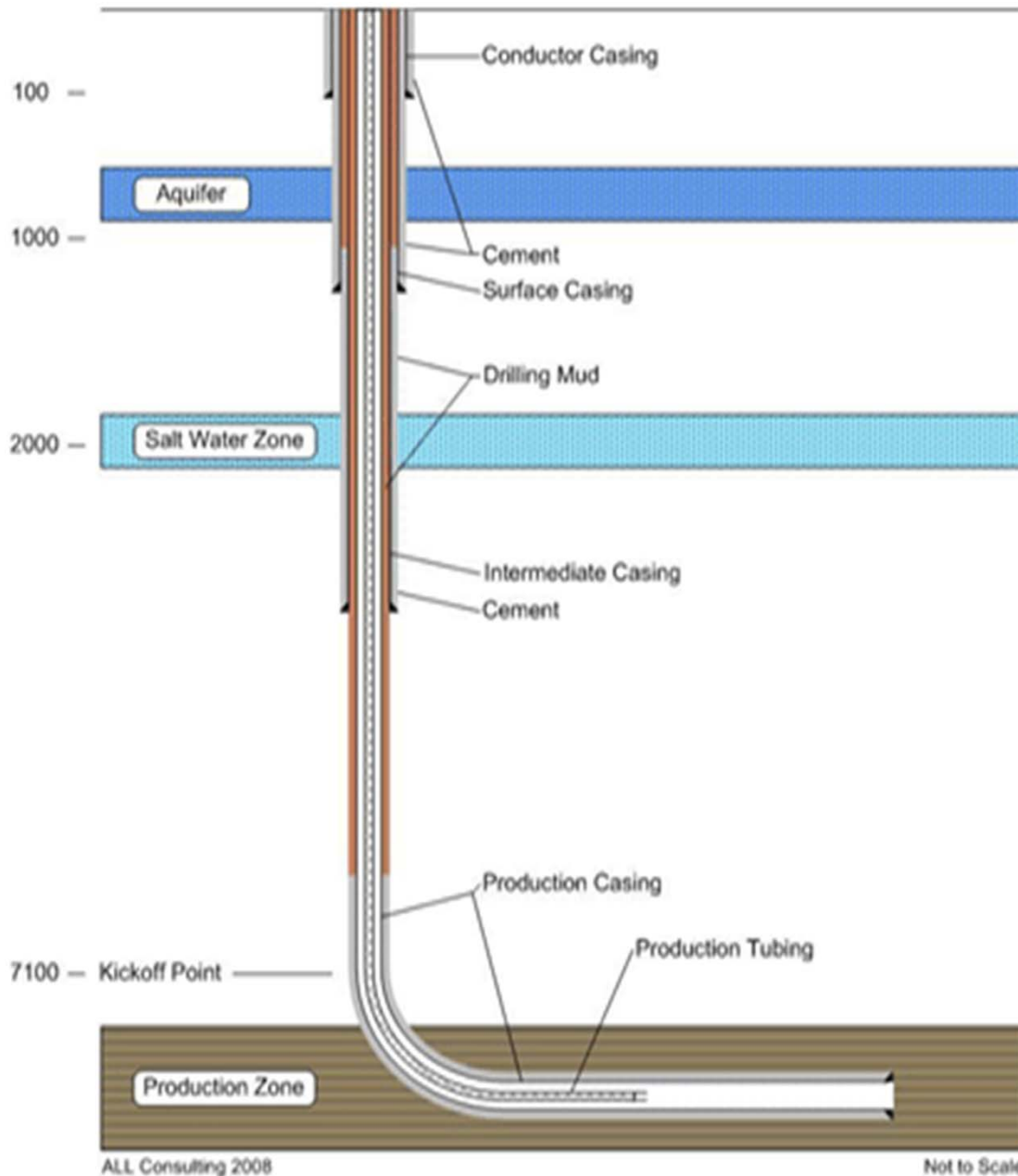
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Why do wells leak?



ALL Consulting 2008

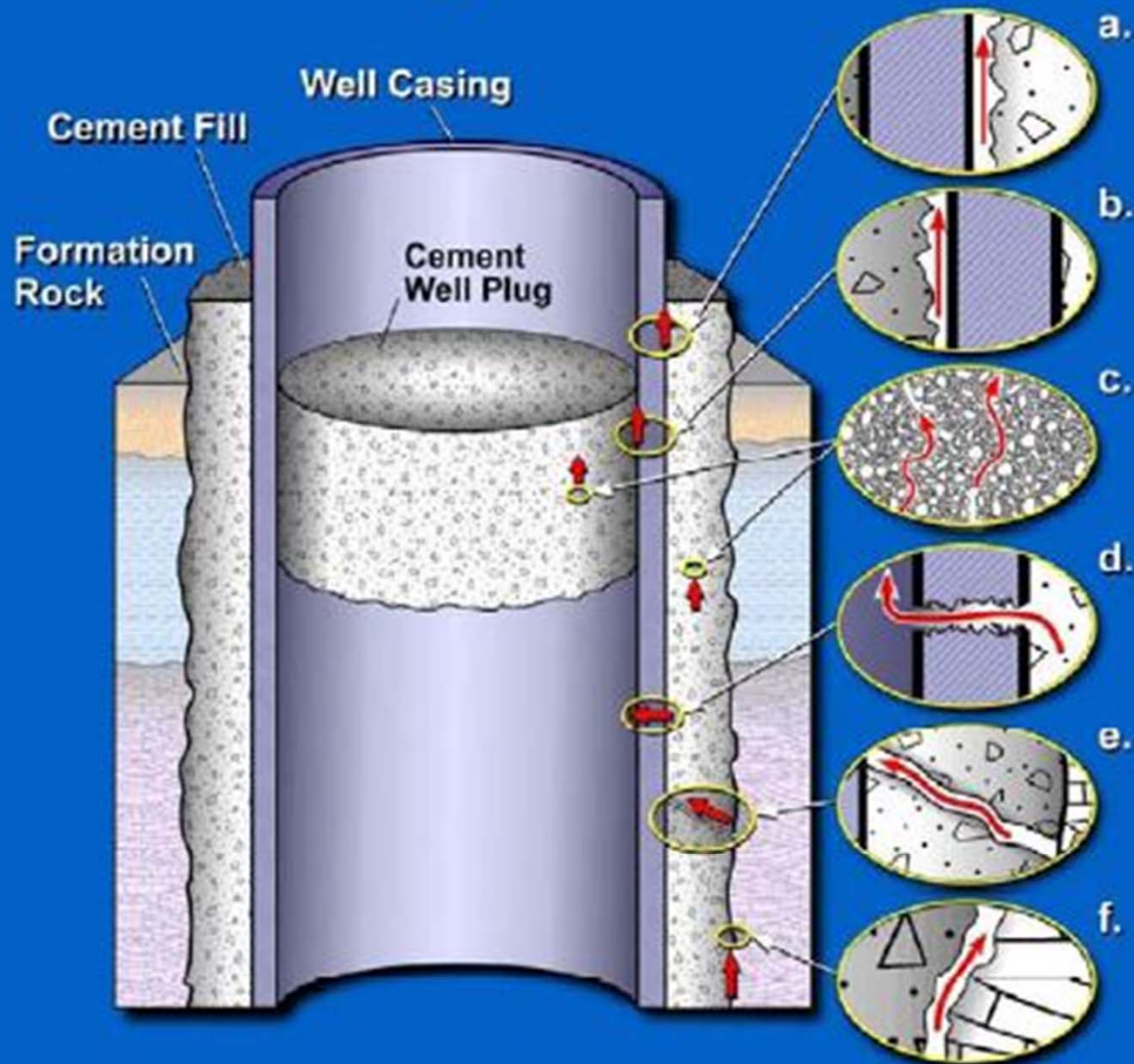
Not to Scale

Prerequisites for a leak:

1. A source of fluid
2. A gradient to drive the fluid
3. A pathway for the fluid to move



Potential Gas Migration Paths along a Well

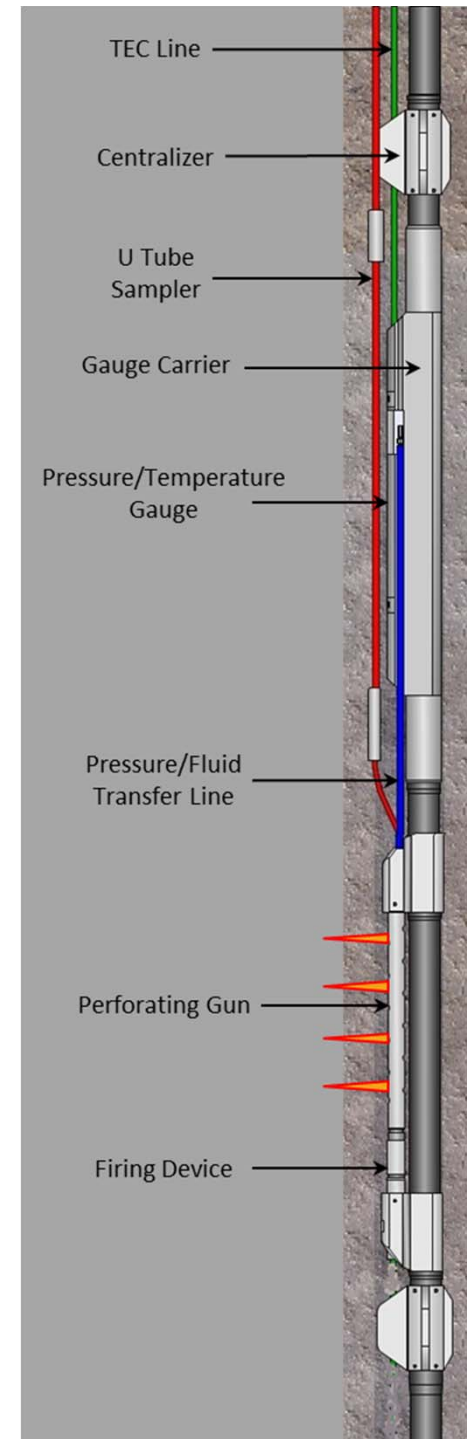


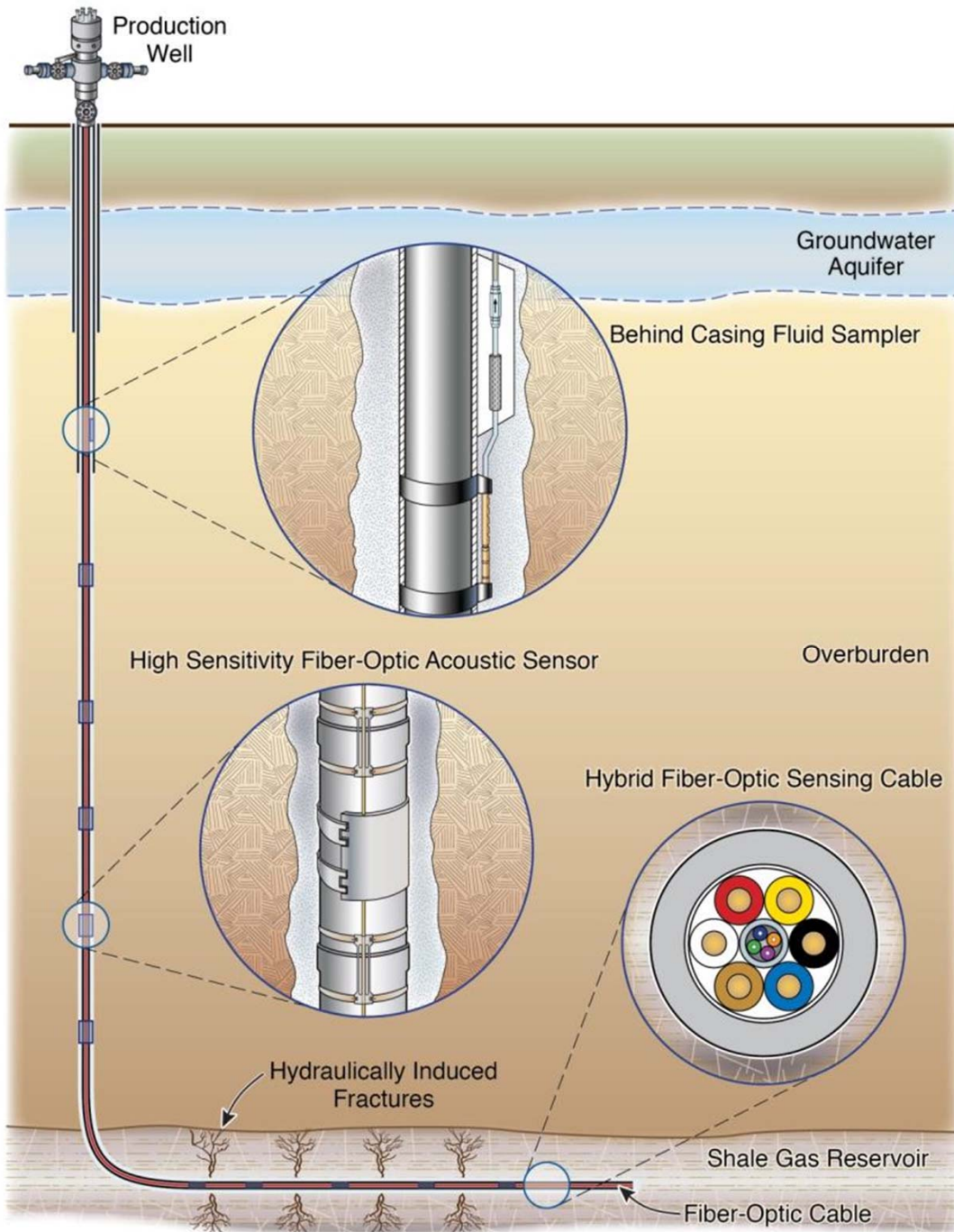
Source: Alberta Energy Utilities Board

New Technologies for Assessing Well Integrity and Reservoir Protection:

- Behind Casing Monitoring of Pressure and Fluid Chemistry
- Fiber-Optic DTS, DAS, DSS for assessing behind casing leakage
- Seismic and sonic techniques for detecting gas behind casing

A RMP should guide P&A activities. Wells should be assessed for integrity prior to P&A.





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- Field studies should improve understanding of mechanisms of leakage and magnitude of risk.
- Monitoring of groundwater wells and surface monitoring should be used to determine baseline conditions and look for changes caused by oil and gas activity.
- P&A activities should follow best practices
 - establish an absence of leakage prior to P&A
 - fix leaking wells and/or mitigate adverse conditions (e.g. corrosion) that could lead to leaks