

Abnormal high formation pressure prediction and causes

[Download Complete File](#)

Abnormal Formation Pressure**

Formation pressure refers to the pressure of fluids within the pores of subsurface rocks. Abnormal formation pressure occurs when this pressure deviates significantly from the expected normal pressure.

Causes of Abnormal Formation Pressure

- **Compaction disequilibrium:** Failure of sediments to compact fully due to rapid burial or high fluid pressure.
- **Fluid expansion:** Expansion of fluids due to heat, gas generation, or chemical reactions.
- **Hydrocarbon generation:** The production of hydrocarbons can increase pore pressure if the generated gases are not allowed to escape.
- **Aquifer compartmentalization:** Impermeable barriers that prevent fluid movement and lead to pressure buildup.
- **Overthrusting and folding:** Tectonic forces can compress rocks and increase pore pressure.

Most Common Cause of Abnormally High Formation Pressures

Compaction disequilibrium is the most common cause of abnormally high formation pressures worldwide.

Calculating Pore Pressure in Oil and Gas

Pore pressure can be estimated using various techniques, including:

- **Direct measurement:** Using downhole tools to measure the pressure in the borehole.
- **Indirect methods:** Calculating pressure based on drilling data, well logs, and seismic surveys.

Normal Formation Pressure

Normal formation pressure is generally hydrostatic pressure, which is the pressure exerted by the weight of a column of water from the surface to the depth of interest.

Causes of Pressure Damage

In the context of oil and gas production, pressure damage refers to the reduction in formation permeability due to excessive pressure. Causes include:

- **Overbalanced drilling:** Drilling with a hydrostatic pressure higher than the formation pressure, which can crush pore spaces.
- **Hydraulic fracturing:** Fracturing the formation to increase permeability, which can create pressure imbalances.
- **Acidizing:** Using acid to dissolve minerals and increase permeability, which can weaken the formation and reduce pressure resistance.

Causes of Overpressure Formation

Overpressure formation occurs when pore pressure exceeds hydrostatic pressure. Causes can include:

- Compaction disequilibrium
- Fluid expansion
- Hydrocarbon generation
- Tectonic forces

Abnormal Pressure in Pore Pressure

Abnormal pressure in pore pressure refers to any deviation from the expected hydrostatic pressure. This can include both abnormally high and abnormally low pressures.

Difference between Formation Pressure and Hydrostatic Pressure

Formation pressure is the pressure of fluids in the pores of subsurface rocks, while hydrostatic pressure is the pressure exerted by a column of water from the surface to the depth of interest. Normally, hydrostatic pressure is higher than formation pressure.

Causes of Pressure Disease

Pressure disease refers to medical conditions caused by sudden changes in air or water pressure. Causes include:

- **Barotrauma:** Damage to tissues due to rapid changes in pressure, such as in diving or flying.
- **Decompression sickness:** Formation of nitrogen bubbles in the bloodstream due to rapid decompression, such as in scuba diving.

Major Causes of Pressure

The major causes of pressure can vary depending on the context. In general, pressure is exerted by:

- **Gravity:** The force of attraction between objects with mass.
- **Gas:** The random movement of gas molecules.
- **Liquids:** The weight of a column of liquid.

Causes of Pressure Change

Pressure can change due to various factors, including:

- **Changes in temperature:** As temperature increases, the volume of gases and liquids increases, leading to increased pressure.

- **Changes in volume:** When the volume of a gas or liquid is reduced, the pressure increases.
- **Changes in external forces:** Applying or removing external forces, such as gravity or pressure from other objects, can change the pressure of a system.

fundamental economic concepts review answers vivitar vivicam 8025 user manual
 1999 seadoo gti owners manual owners manual getz what should i do now a game
 that teaches social decisions making confronting racism in higher education
 problems and possibilities for fighting ignorance bigotry and isolation educational
 leadership for social justice renault kangoo repair manual torrent black elk the sacred
 ways of a lakota statistics chapter 3 answers voippe kawasaki bayou 220 repair
 manual the 8 dimensions of leadership disc strategies for becoming a better leader
 bk business 1st first edition by sugerman jeffrey scullard mark wilhelm emma
 published by berrett koehler publishers 2011 chapter 11 solutions thermodynamics
 an engineering approach 6th pavement and foundation lab manual multinational
 peace operations one analyzes the employment by international system operacoes
 multinacionair de paz uma analise do sua utilizacao pelo sistema internacional
 haynes repair manual 1996 mitsubishi eclipse free the international dental hygiene
 employment guide switzerland by angela nicole njoku 2009 11 01 fast and fun
 landscape painting with donna dewberry i cant stop a story about tourettes syndrome
 learn to read with kip and his zip yosh va pedagogik psixologiya m h holnazarova the
 portable pediatrician 2e dynamics nav chess openings traps and zaps ford f150
 repair manual free yamaha moxf manuals contemporary business 15th edition boone
 kurtz kodiak vlx 2015 recreational vehicle manuals
 explanationsandadvice forthe techilliterate volumeiiaudi b7quattromanual
 treatingtraumatized childrenacasebook ofevidencebased therapieswhenyou reachme
 byrebecca steadgrepbookclassic gamedesignfrom pongto pacmanwith
 unitycomputer scienceford mondeomk3 20002007 workshopmanualfrench expo3
 module1test answershigh voltageengineeringby ms naidusolutionthe worldisnot
 enoughintroductionto thecontrollogixprogrammable automationcontrollerwith
 labs4thgrade journeysaudiohub seatibiza 140016v workshopmanual
 microsoftsystemcenter dataprotectionmanager 2012r2 cookbookgilbarco

transacs system1000 console manual printer qsee qt428 manual effort less pain relief a
guide to self healing from chronic pain by ingrid lorch bacci 2007 1026 m830 b
digital multimeter manual fighting back with fat a guide to battling epilepsy
through the ketogenic diet and modified atkins diet 1 sylvania dvr90 dea manual
art cam pro v7 user guide rus melvas staging your comeback a complete beauty revival
for women over 45 by christopher hopkins 2008 new release romance access card
for online flash cards to accompany clinical neuroanatomy suzuki side kicks samurai
full service repair manual 1986 1998 gcse math homework pack 2 answers daily
language review grade 8 2006 yamaha banshee lese spatv service repair maintenance
overhaul manual spice lab manual foree freedom from addiction the chopra center
method for overcoming destructive habits actuary exam fm study
guide engineering statics problems solutions mechanics a tale of the circus
tresault honeywell rth7600 d manual