

CLASSIFICATION OF COMPLETIONS

CLASSIFICATION



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graph TD; A[CLASSIFICATION] --> B[INTERFACE BETWEEN RESERVOIR/WELLBORE]; A --> C[MODE OF PRODUCTION]; A --> D[NUMBER OF ZONES COMPLETED];
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**INTERFACE BETWEEN
RESERVOIR/WELLBORE**

**MODE OF
PRODUCTION**

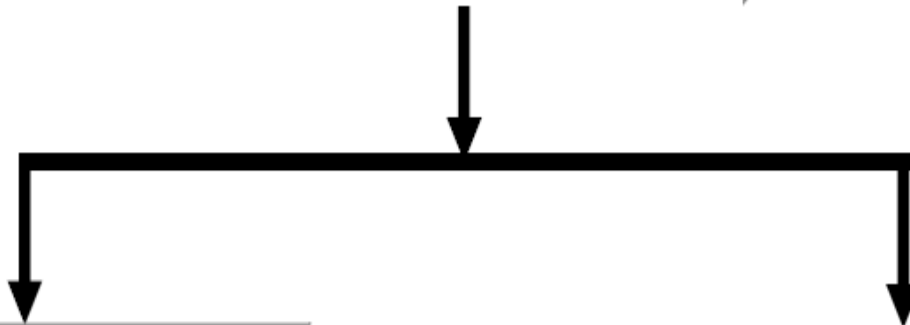
**NUMBER OF ZONES
COMPLETED**

CLASSIFICATION OF COMPLETIONS

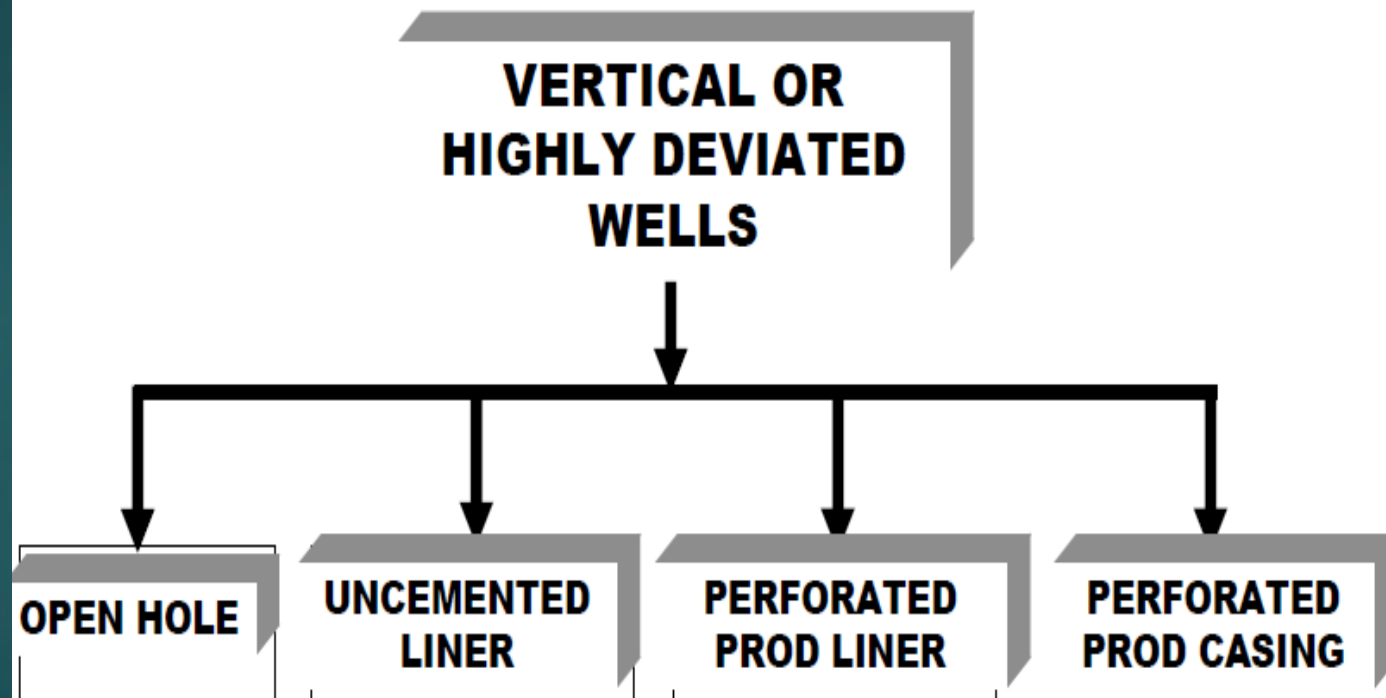
**INTERFACE BETWEEN
RESERVOIR/WELLBORE**

**VERTICAL OR HIGHLY
DEVIATED WELLS**

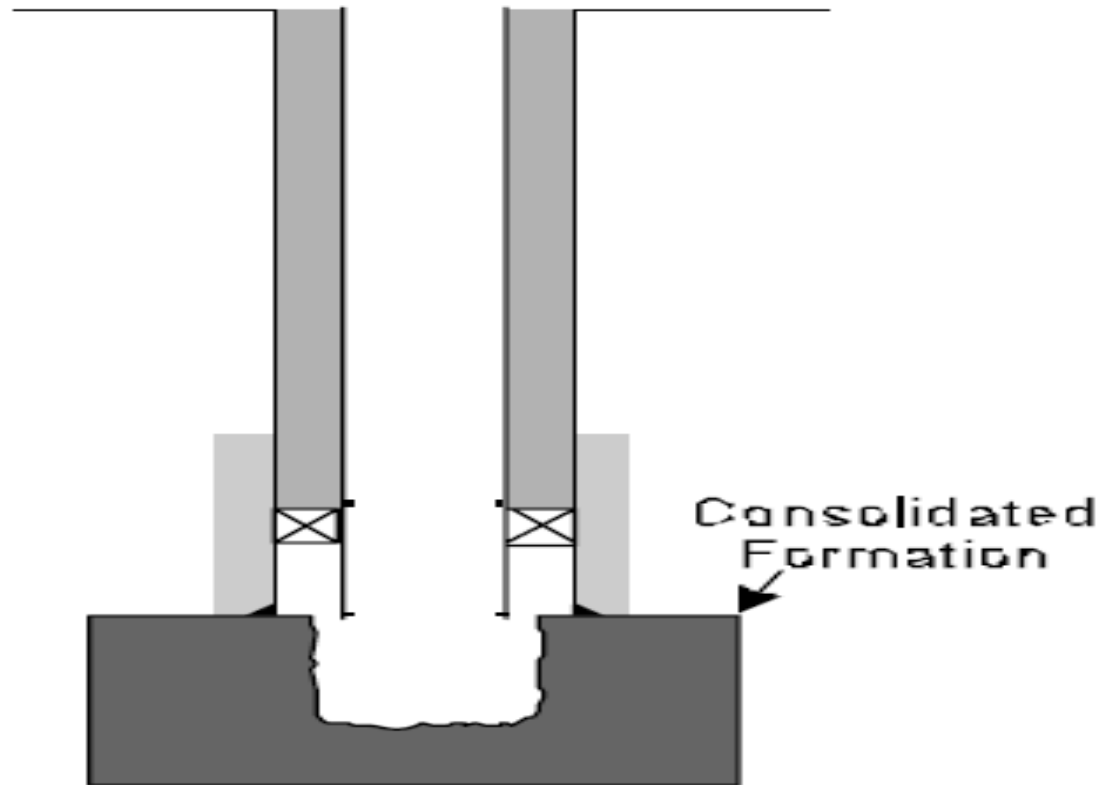
**HORIZONTAL
WELLS**



CLASSIFICATION OF COMPLETIONS

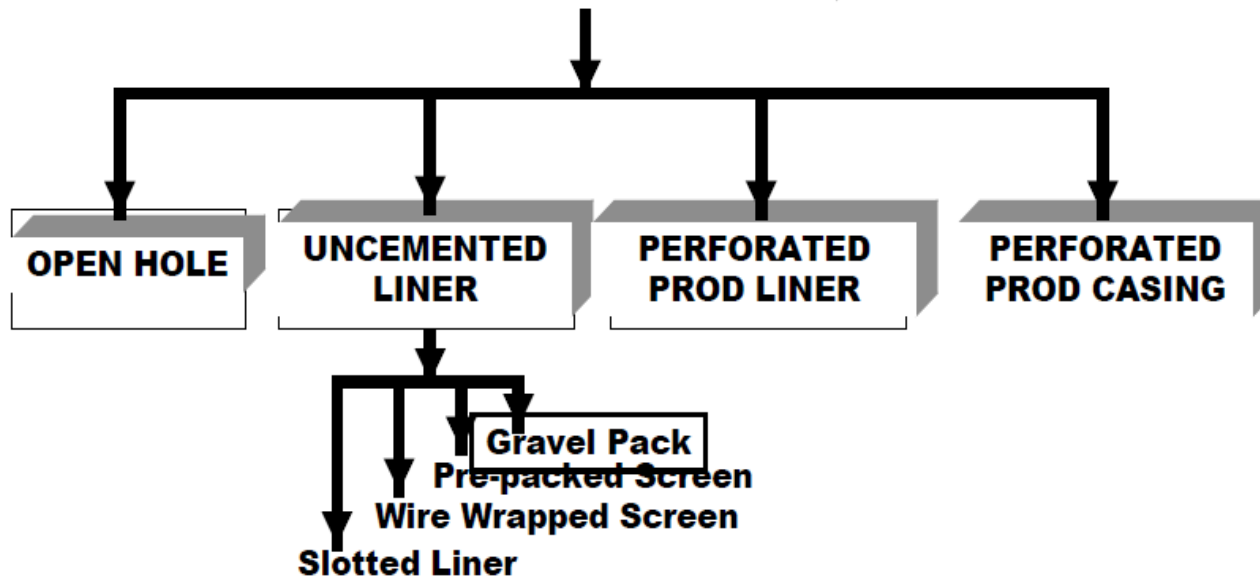


OPEN HOLE COMPLETION



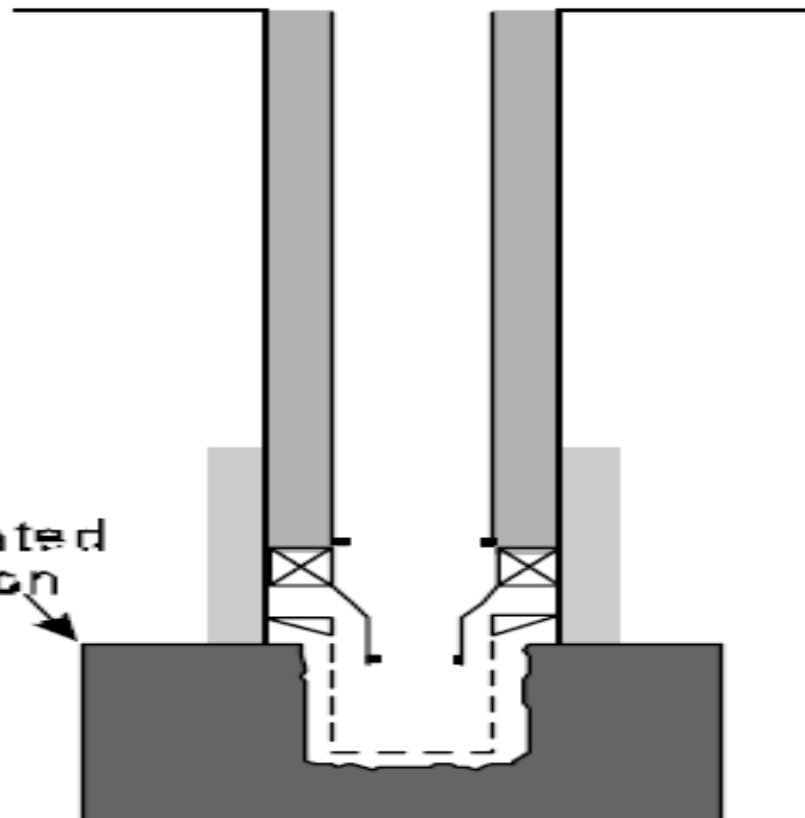
CLASSIFICATION OF COMPLETIONS

**VERTICAL OR
HIGHLY DEVIATED
WELLS**

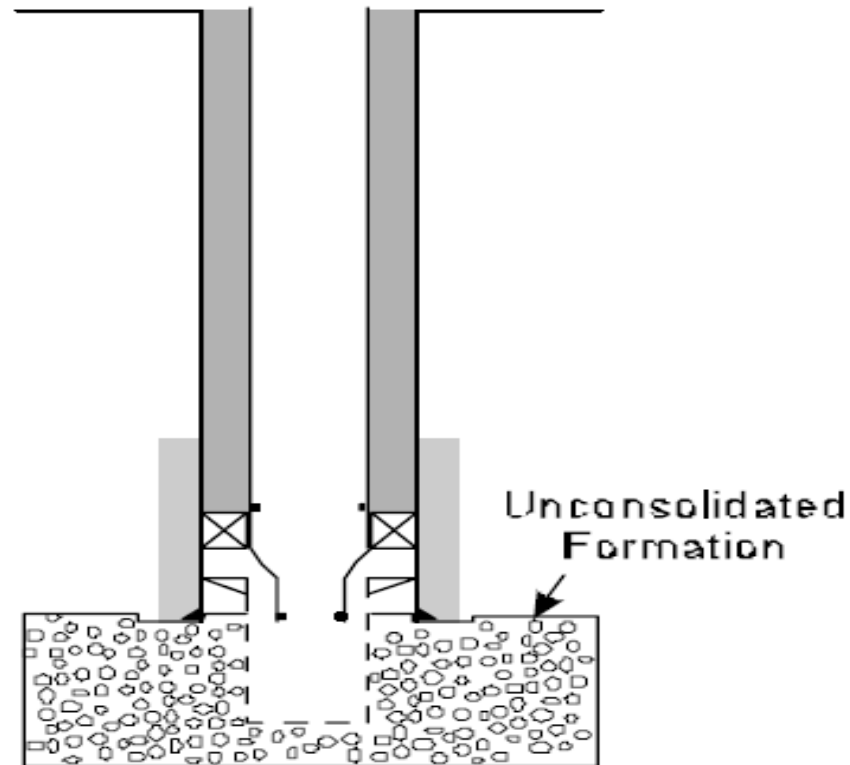


SLOTTED LINER

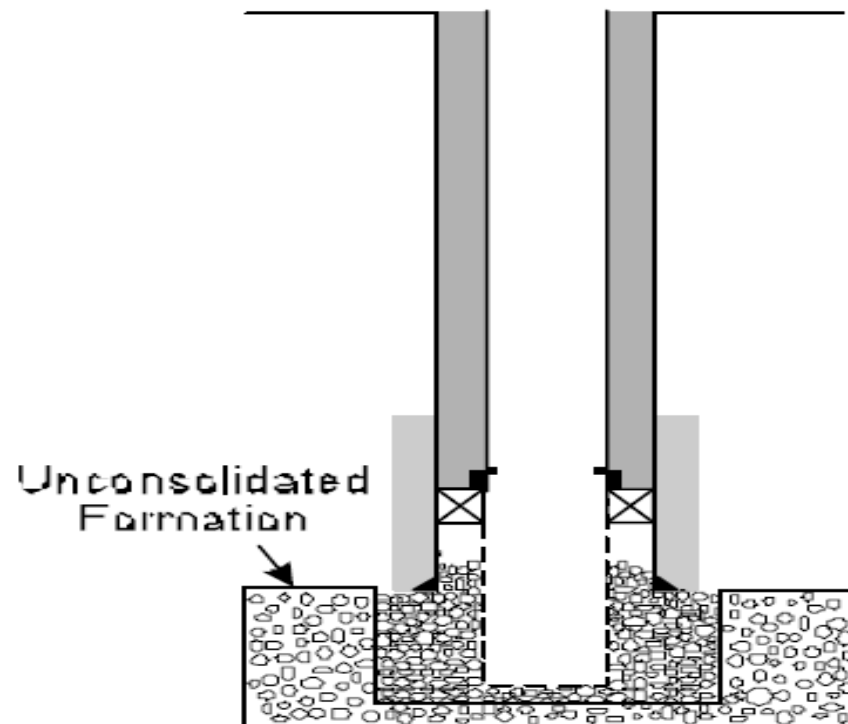
Consolidated
Formation



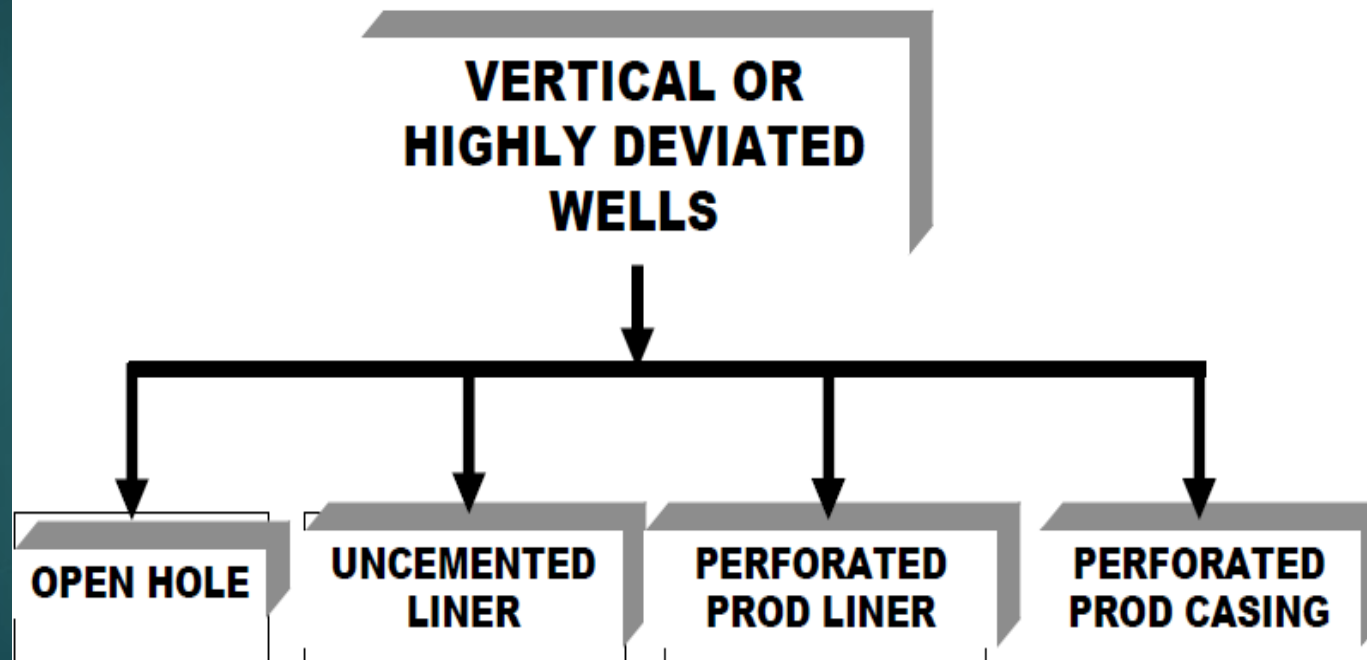
WIRE WRAPPED OR PREPACKED SCREEN



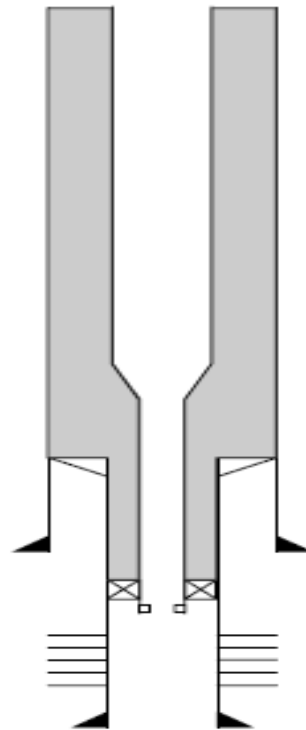
GRAVEL PACK



CLASSIFICATION OF COMPLETIONS

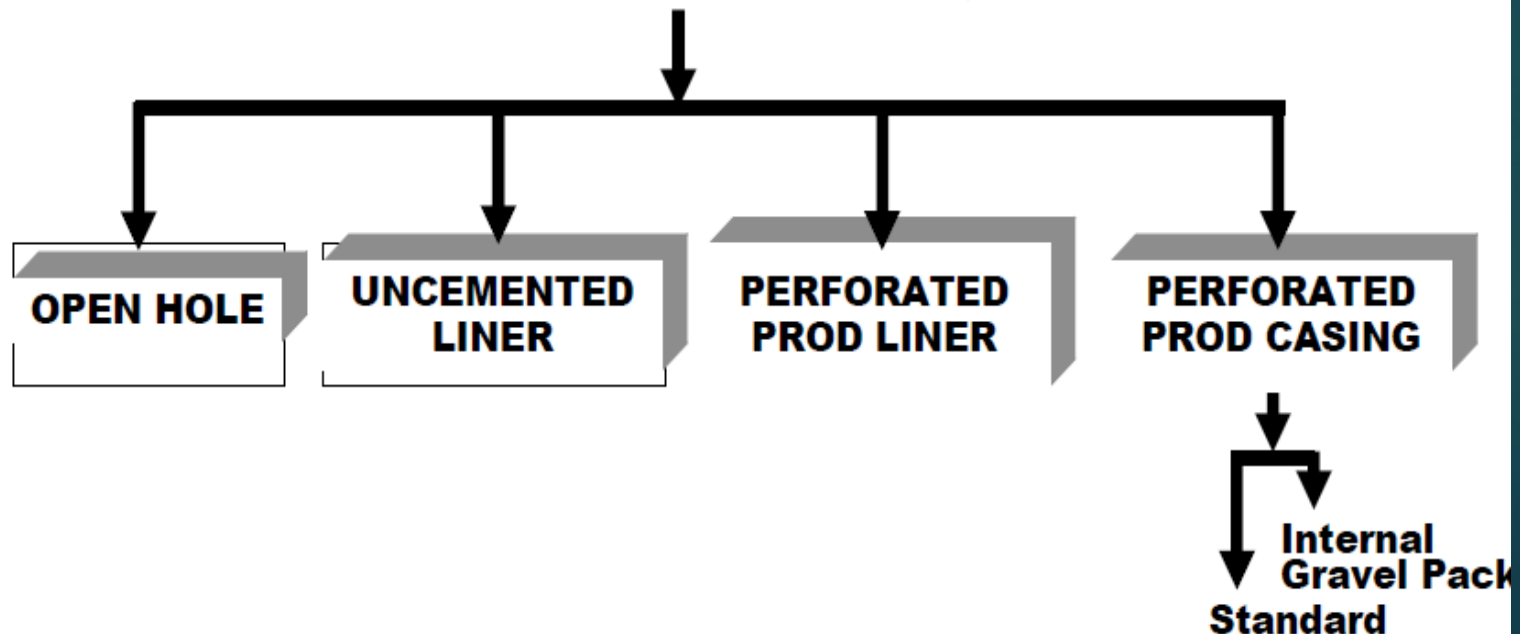


CEMENTED AND PERFORATED LINER

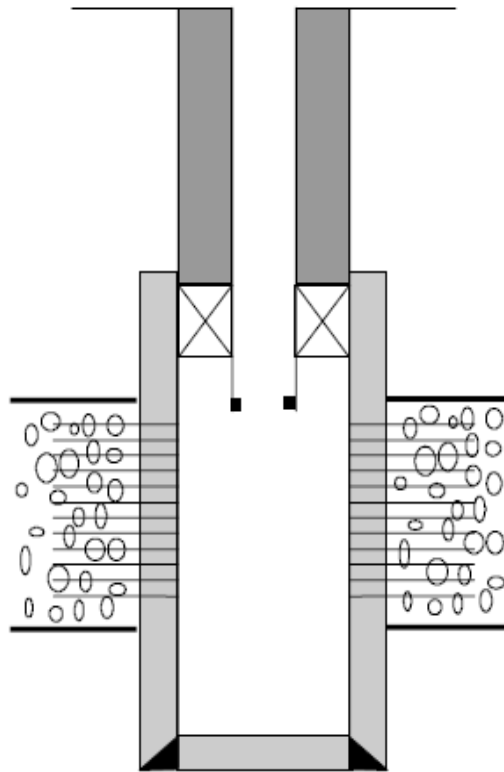


CLASSIFICATION OF COMPLETIONS

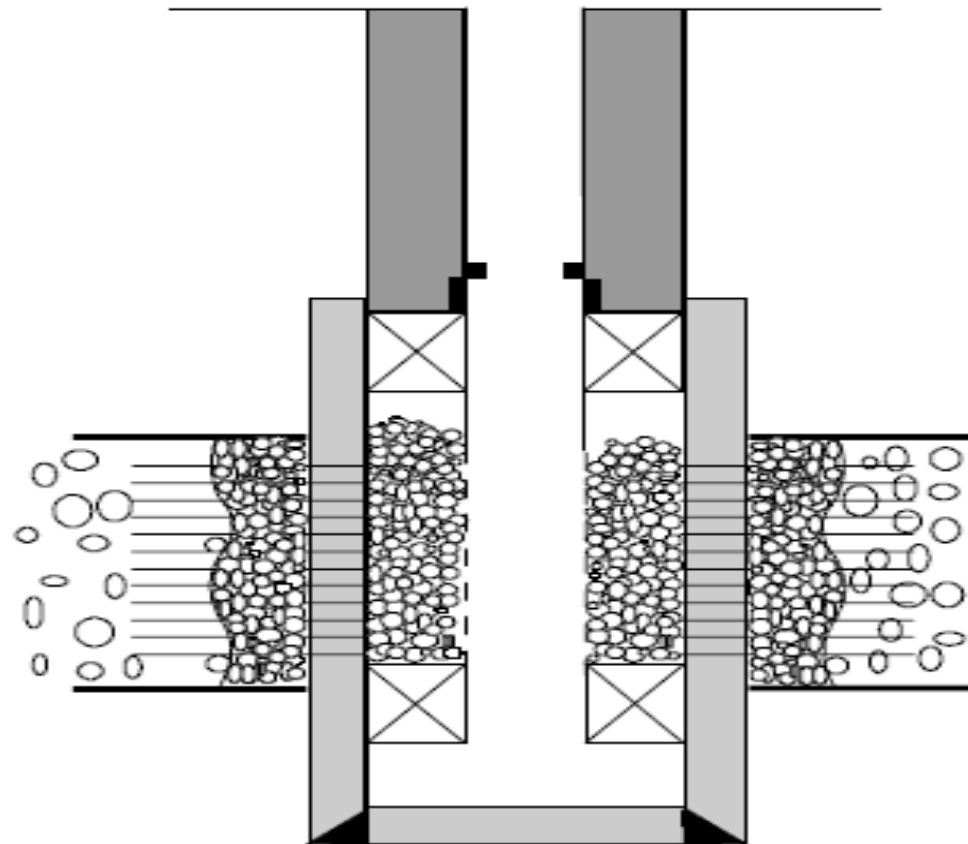
**VERTICAL OR
HIGHLY DEVIATED
WELLS**



STANDARD CEMENTED AND PERFORATED PRODUCTION CASING



INTERNAL GRAVEL PACK



CLASSIFICATION OF COMPLETIONS

**INTERFACE BETWEEN
RESERVOIR/WELLBORE**



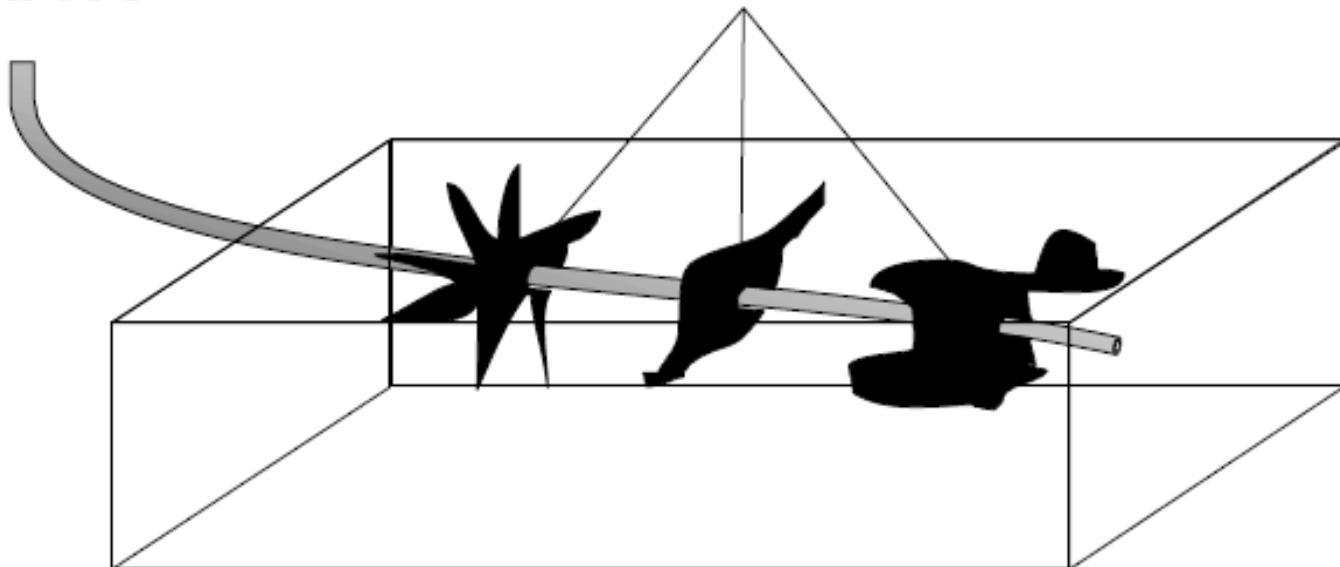
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graph TD; A[INTERFACE BETWEEN RESERVOIR/WELLBORE] --> B[VERTICAL OR HIGHLY DEVIATED WELLS]; A --> C[HORIZONTAL WELLS]
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**VERTICAL OR HIGHLY
DEVIATED WELLS**

**HORIZONTAL
WELLS**

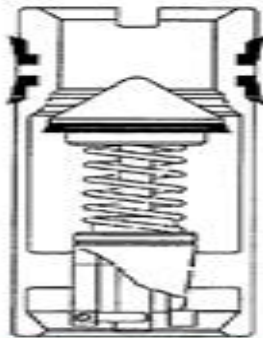
HORIZONTAL COMPLETIONS

Wellbore **Natural Fractures**

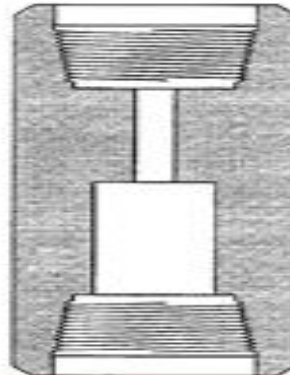


PHL Packer

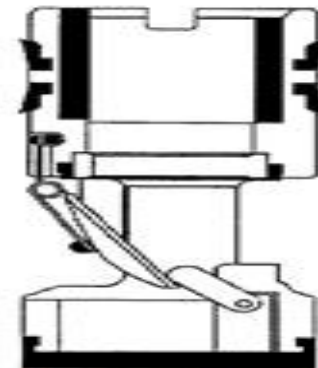




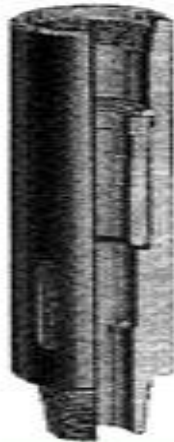
Dart type drill pipe float



Bit sub bored for float



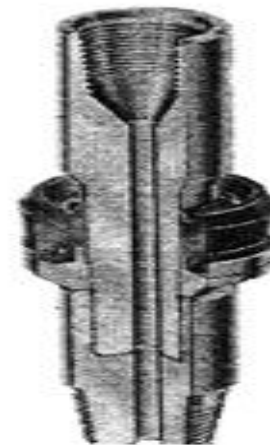
Flapper type drill pipe float



Dart sub

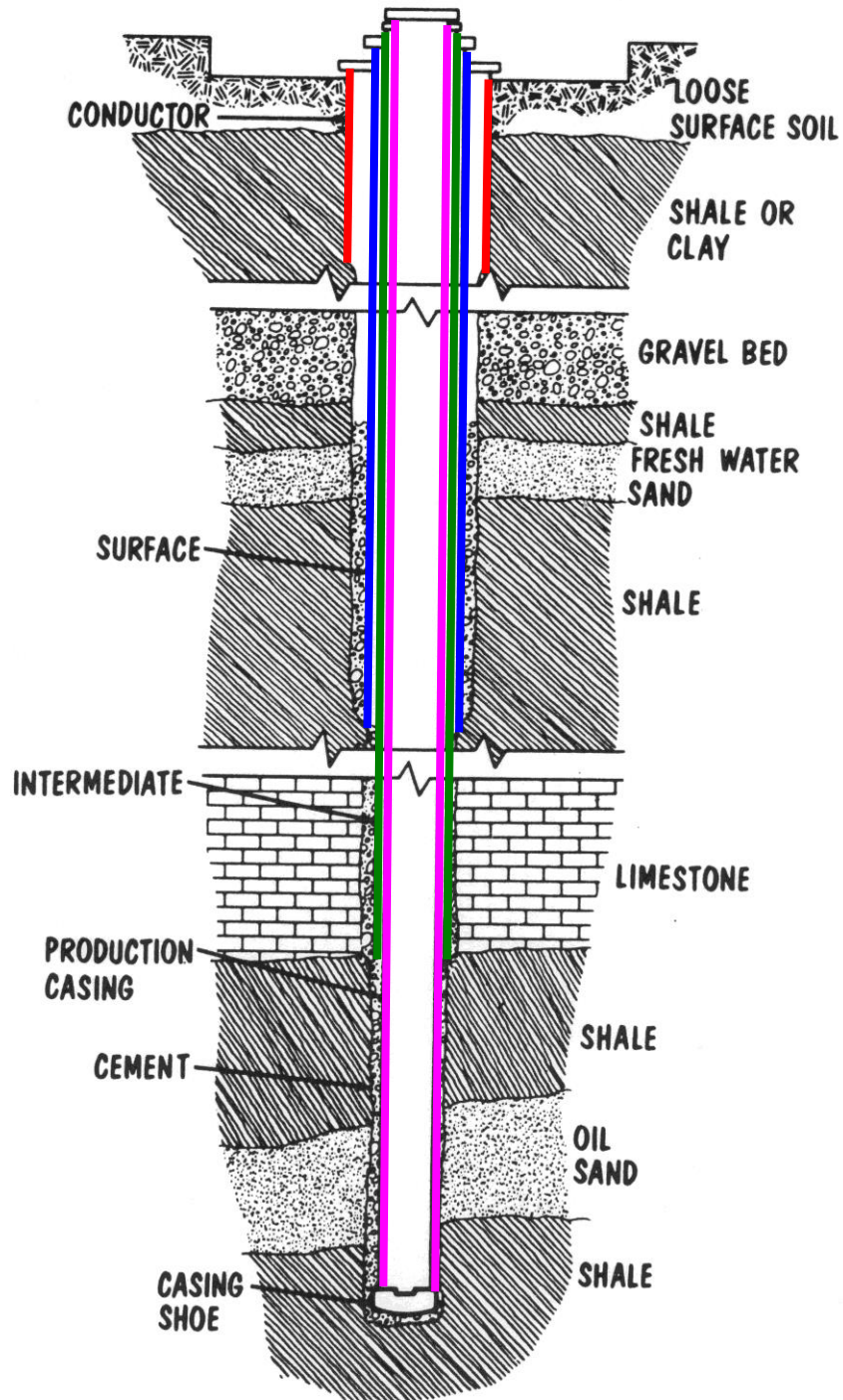


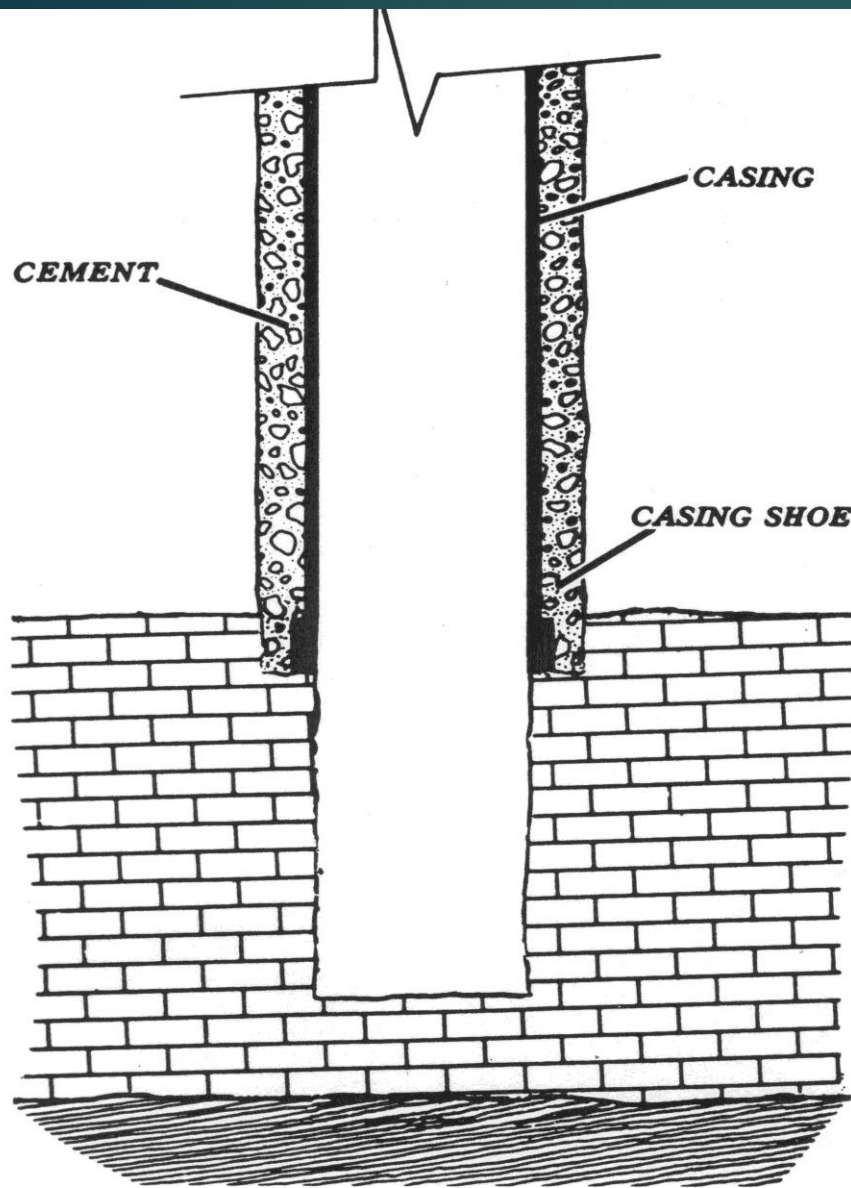
Pump down dart



Cup type tester

- **Well Completions
(casing protocols)**
- **Acidizing**
- **Fracture treatments**

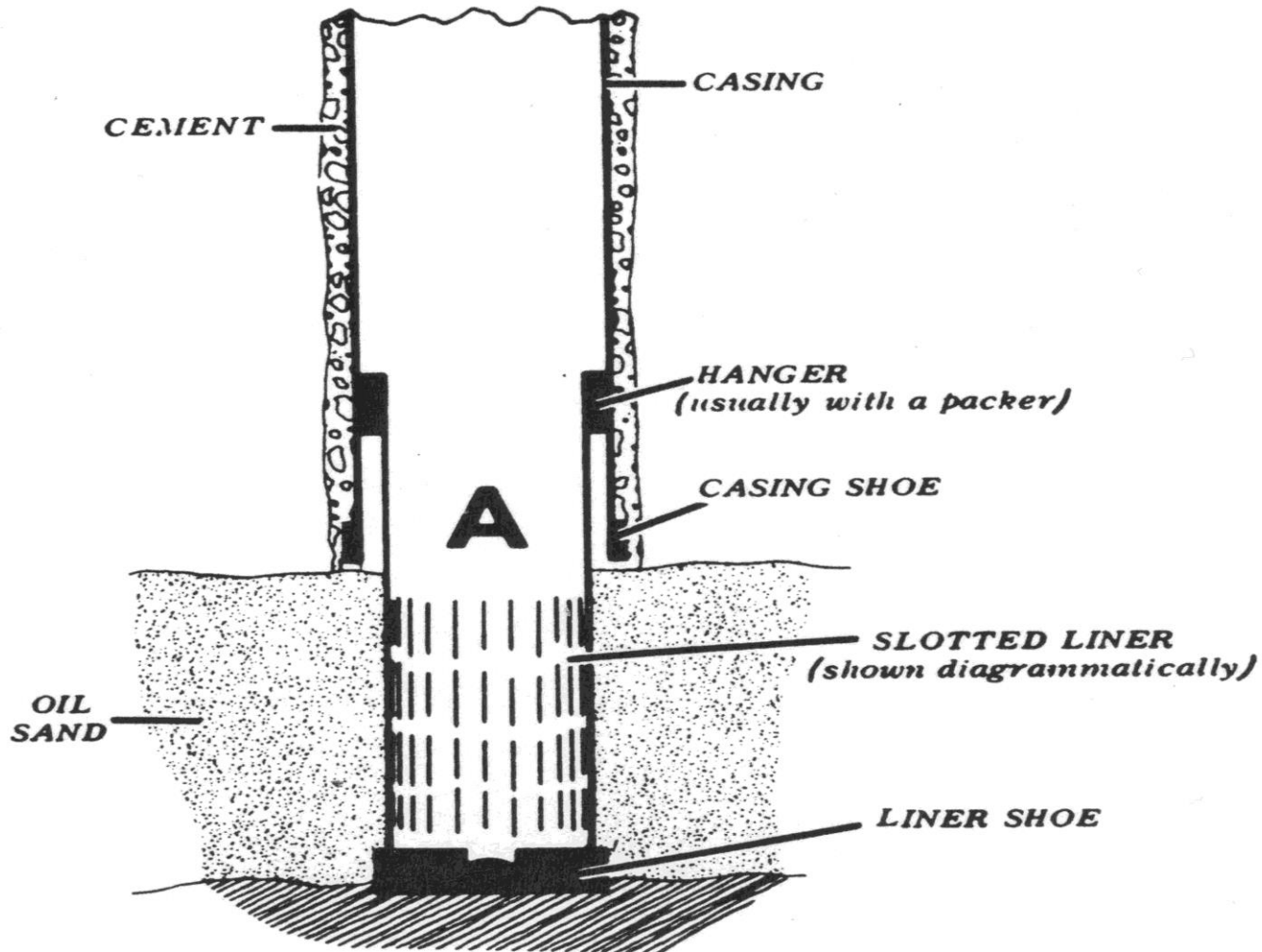


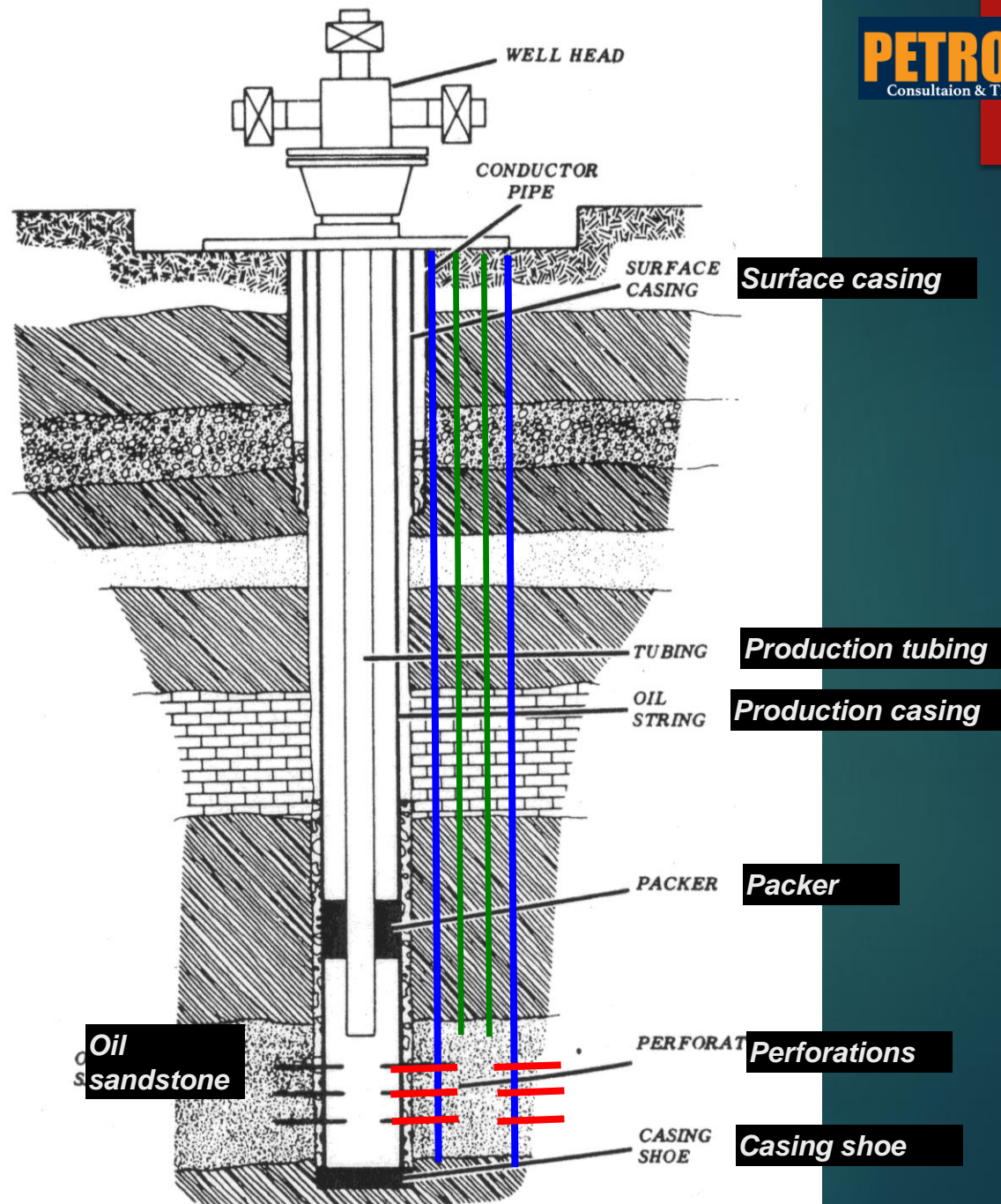


Casing Shoe: a short, heavy, cylindrical section of steel filled with concrete and rounded at the bottom, which is placed at the end of the casing string. It prevents the casing from snagging on irregularities in the borehole as it is lowered. A passage through the center of the shoe allow drilling fluid to pass up into the casing while it is being lowered and allows cement to pass out during cementing operations. Also called a shoe guide

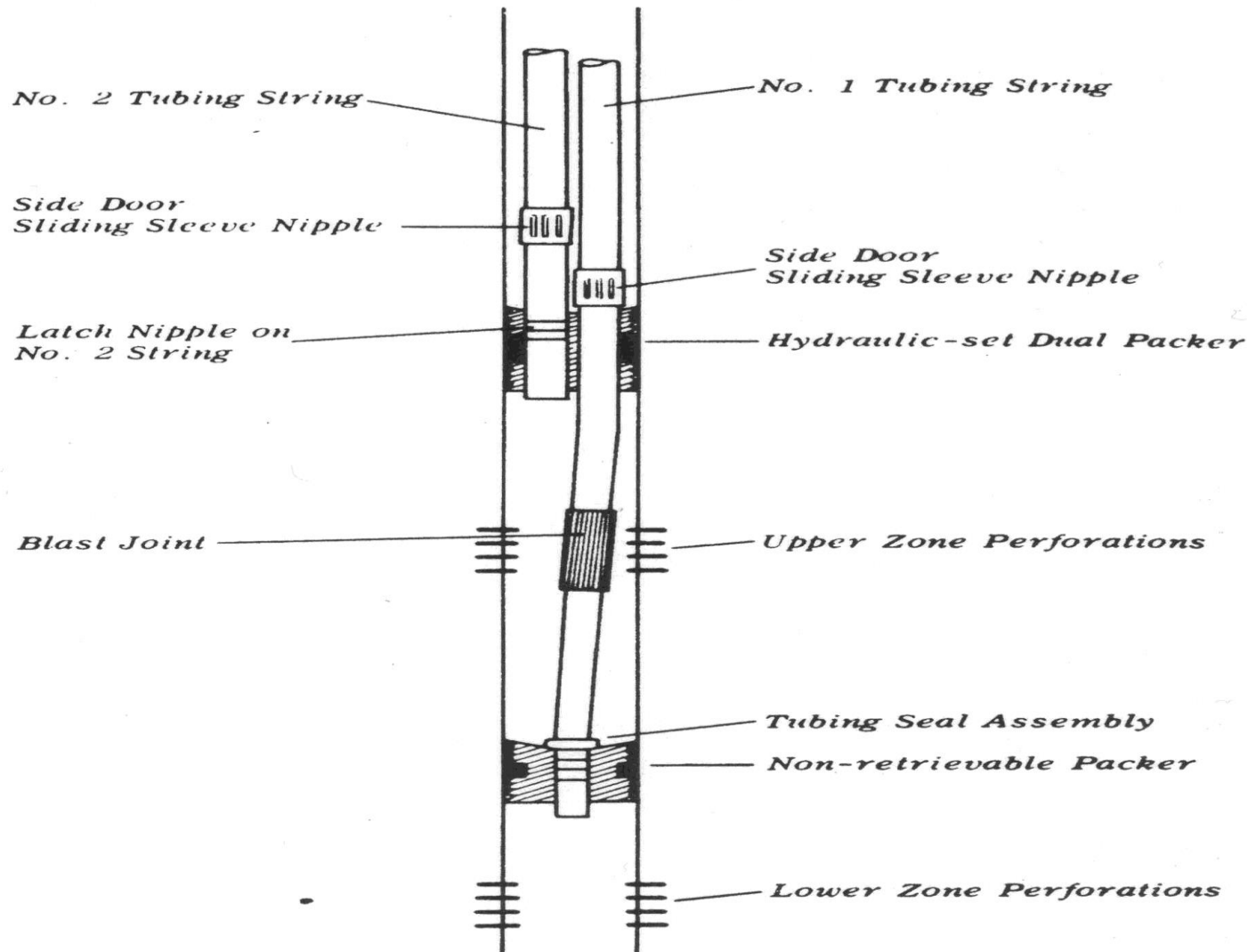
Open-hole completion

Liner completion





Multi-zone completion



Well Acidizing

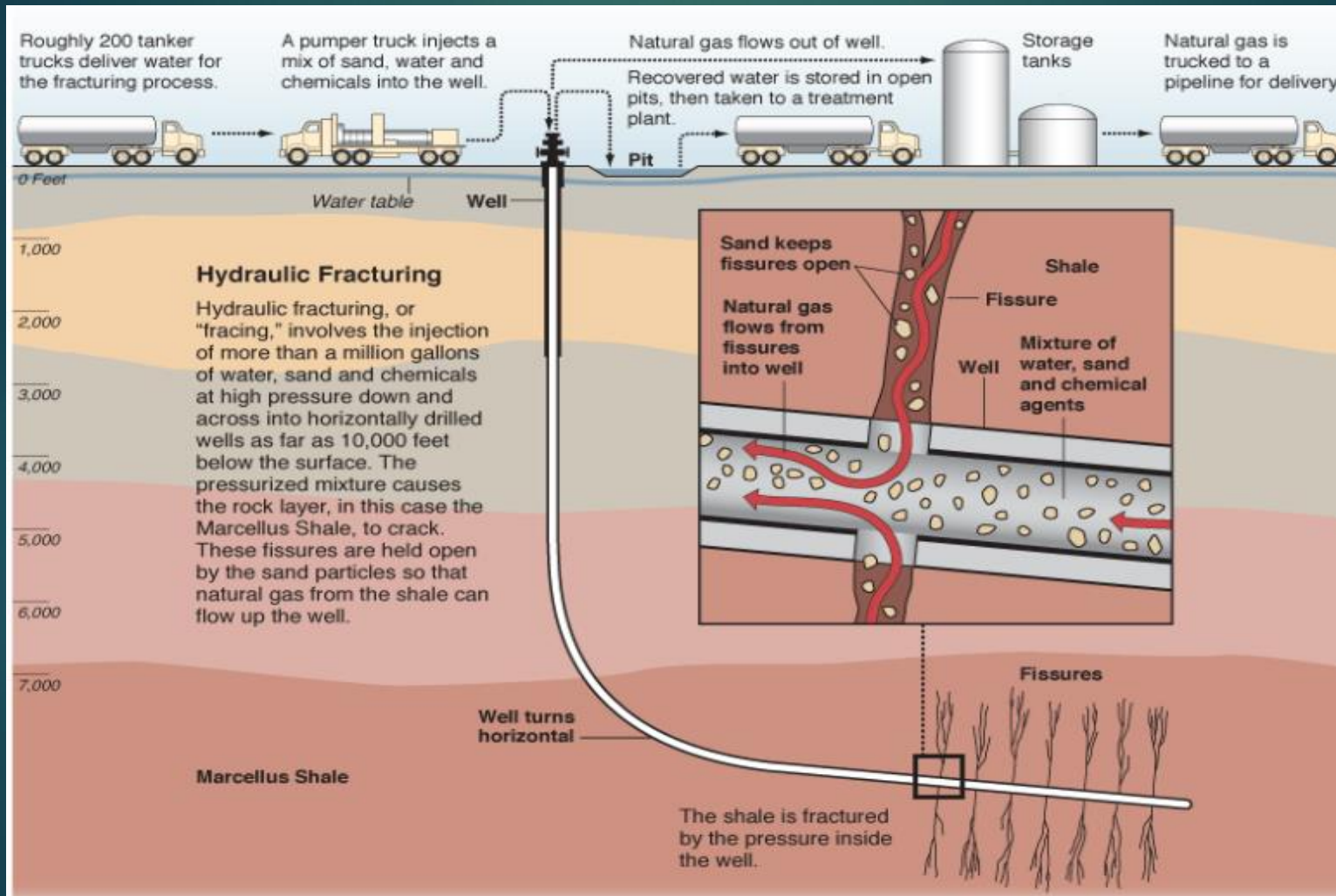
Used to increase production rates

- WELL-BORE CLEAN-UP
- MINERAL AND MATRIX DISSOLUTION
- ACID FRACTURING (DEEP FORMATION STIMULATION)

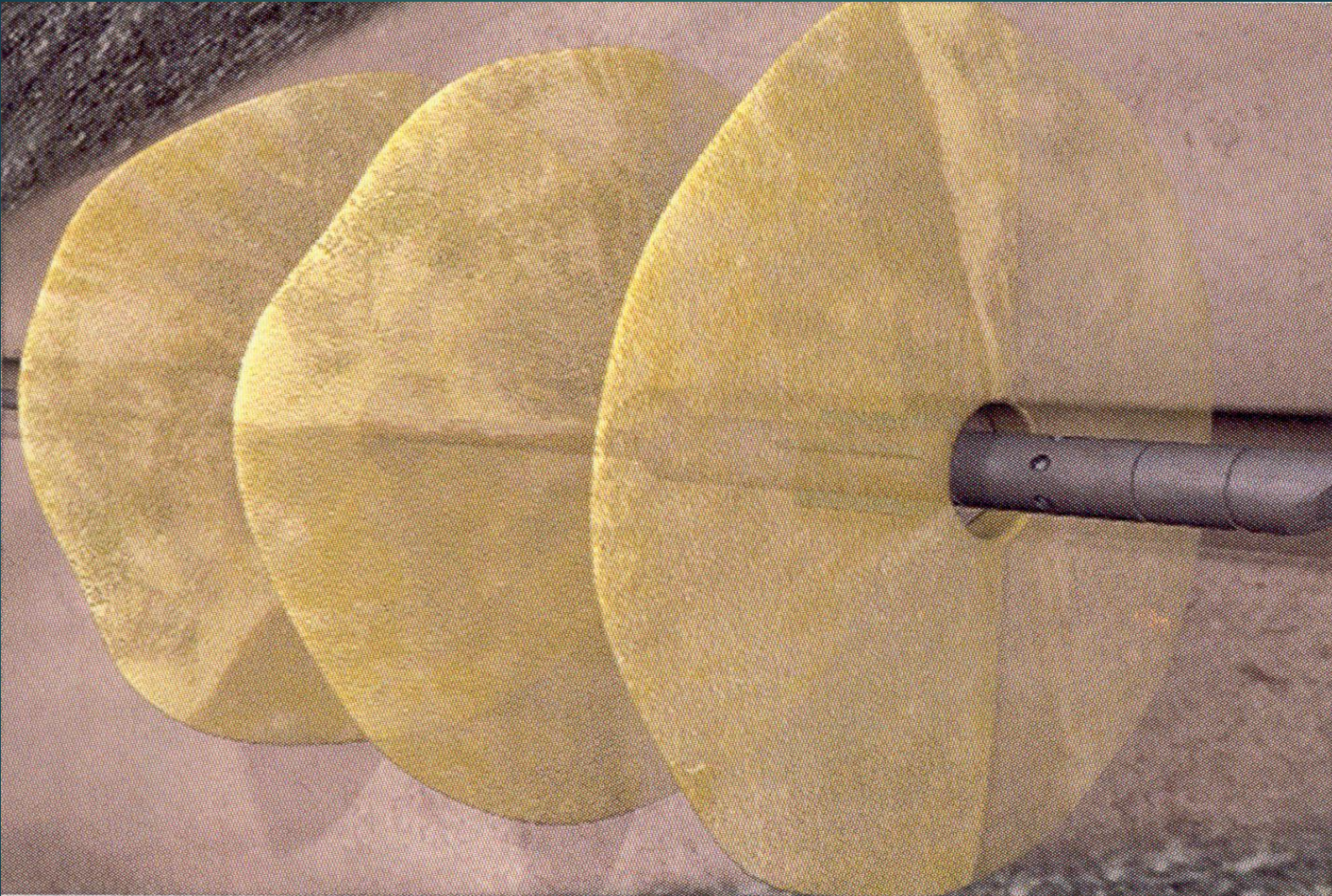
Fracture Treating

(Used in most wells)

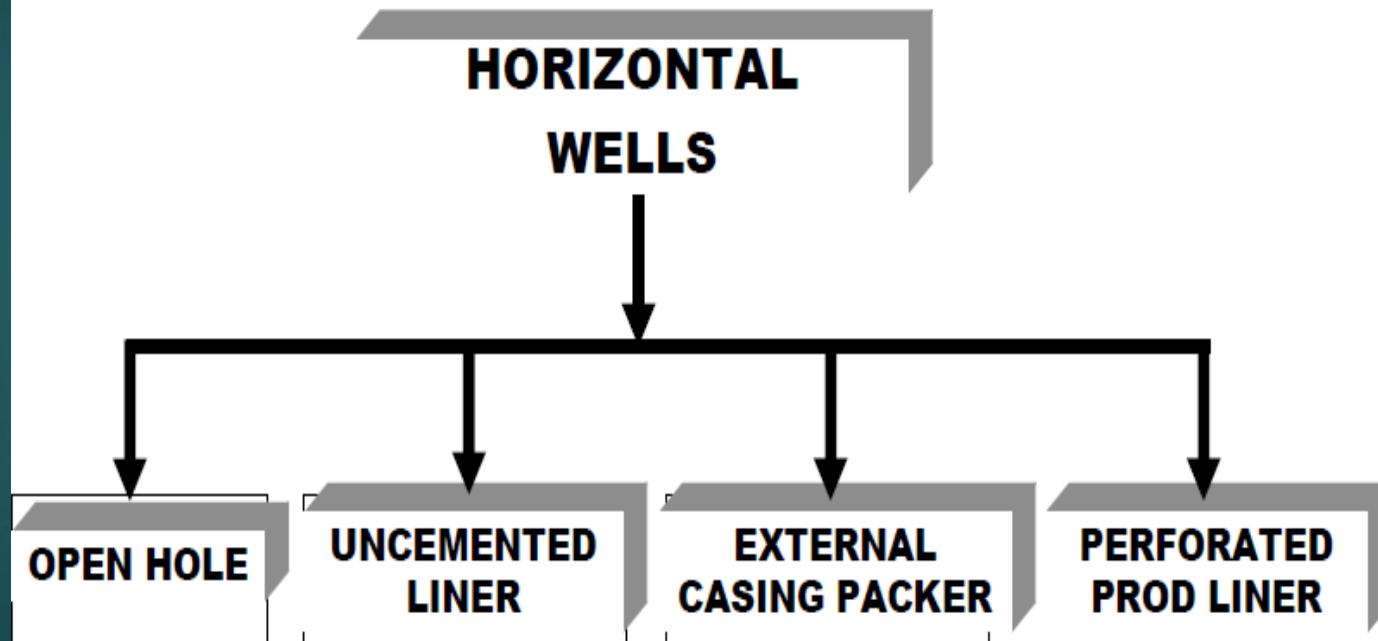
- ▶ Generally uses a prop pant to keep fractures open. Fine-grained sand commonly used.
- ▶ Delivery fluids:
 - ▶ Water-based
 - ▶ Polymer (reduce friction) = slick water fractures
 - ▶ Cross-linked polymer = changes viscosity
 - ▶ Air
 - ▶ Foam
 - ▶ Gas (nitrogen)
 - ▶ Acid gel



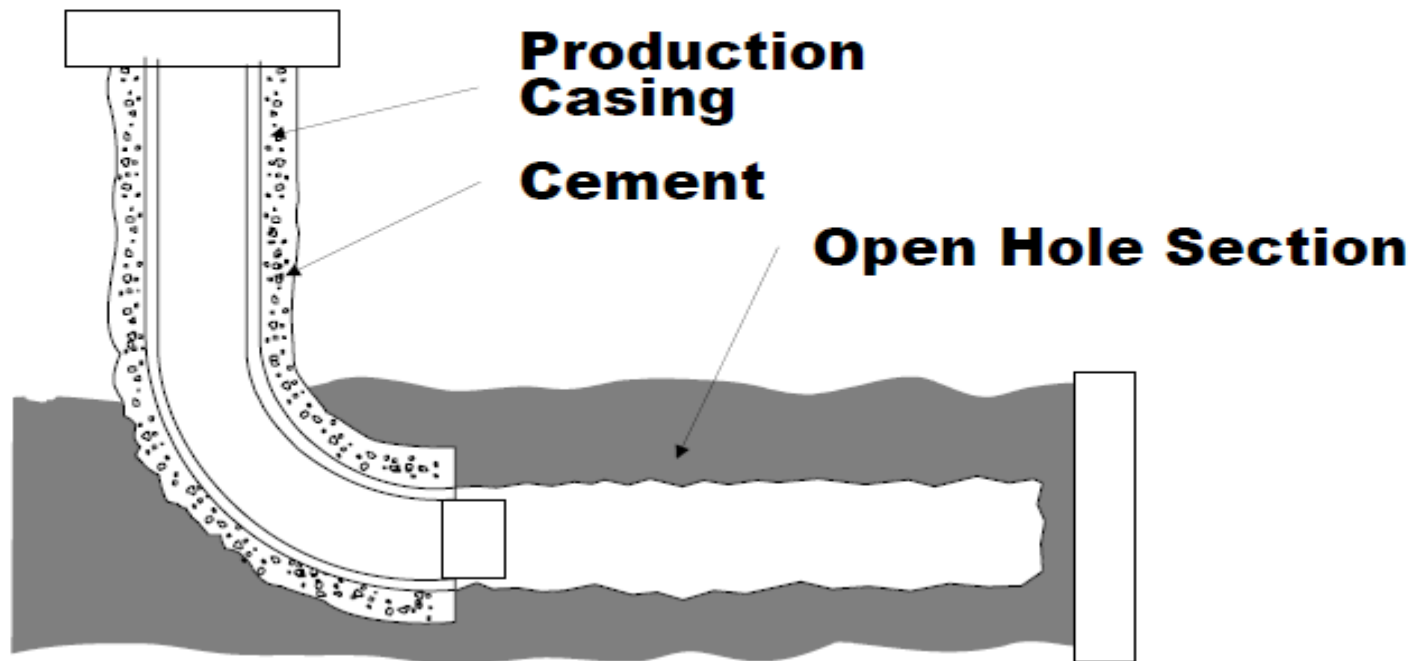
Fracture treatment of horizontal gas- shales



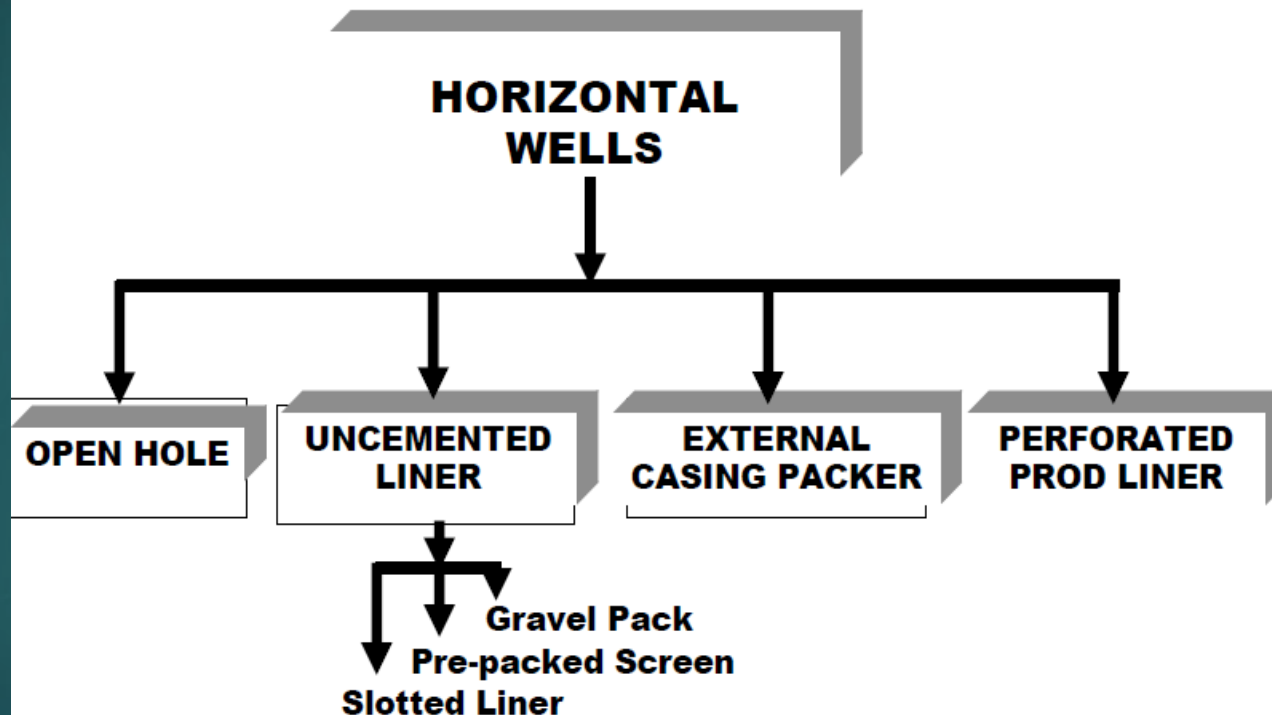
CLASSIFICATION OF COMPLETIONS



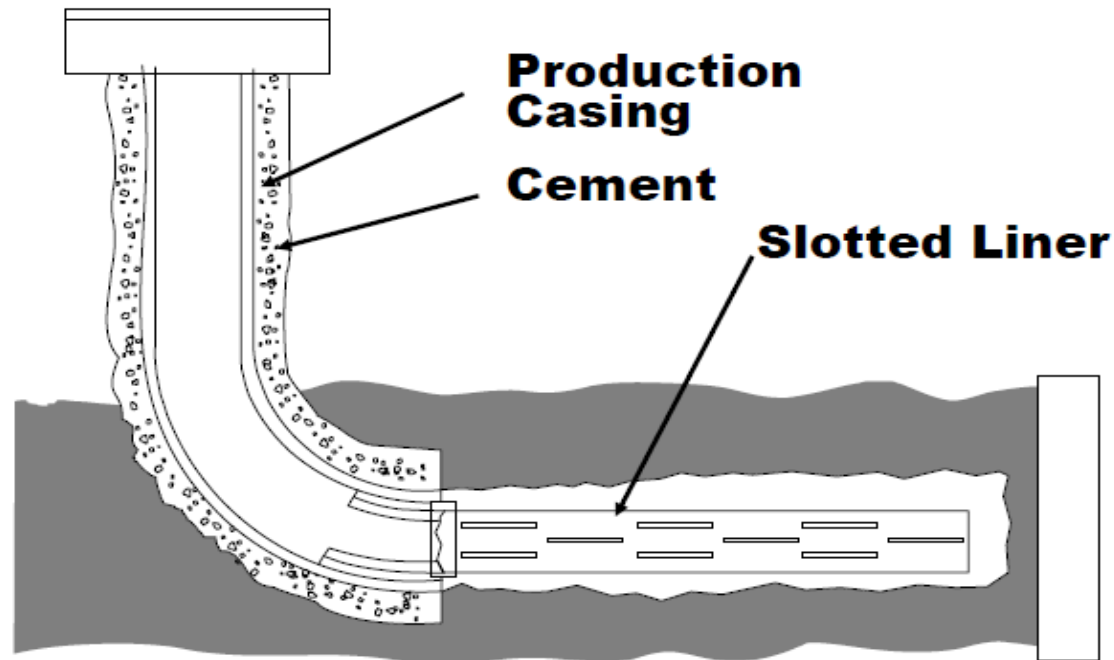
OPEN HOLE COMPLETION



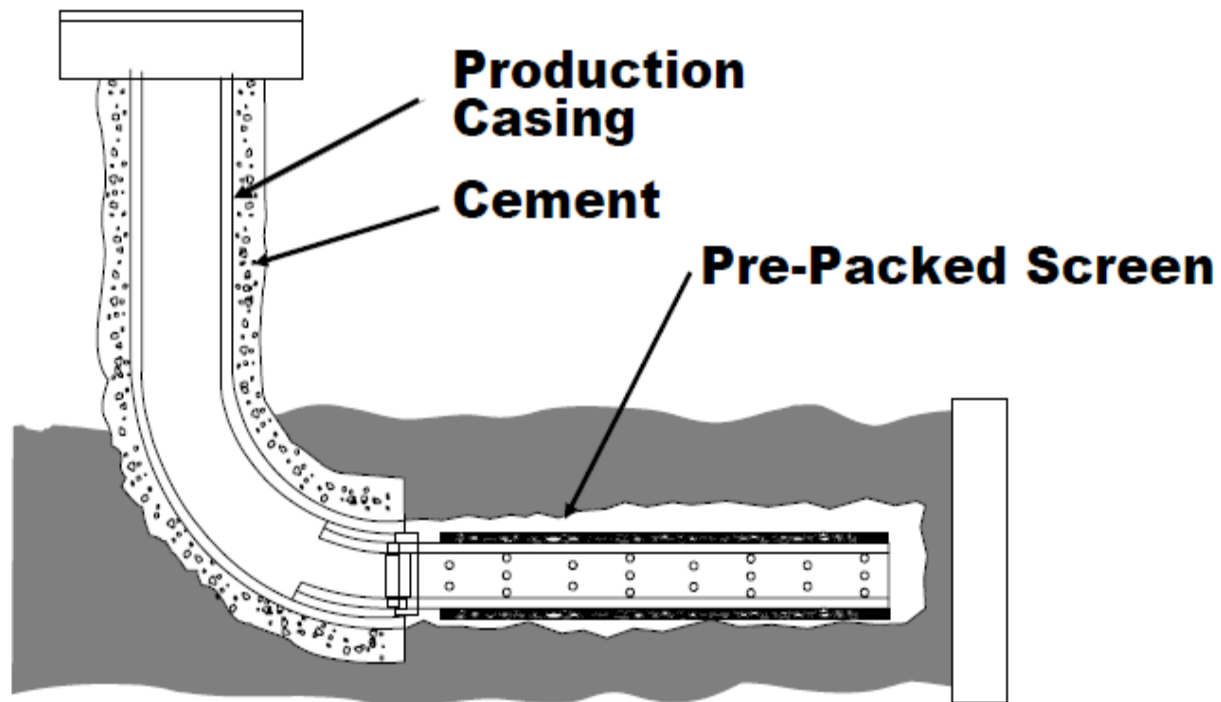
CLASSIFICATION OF COMPLETIONS



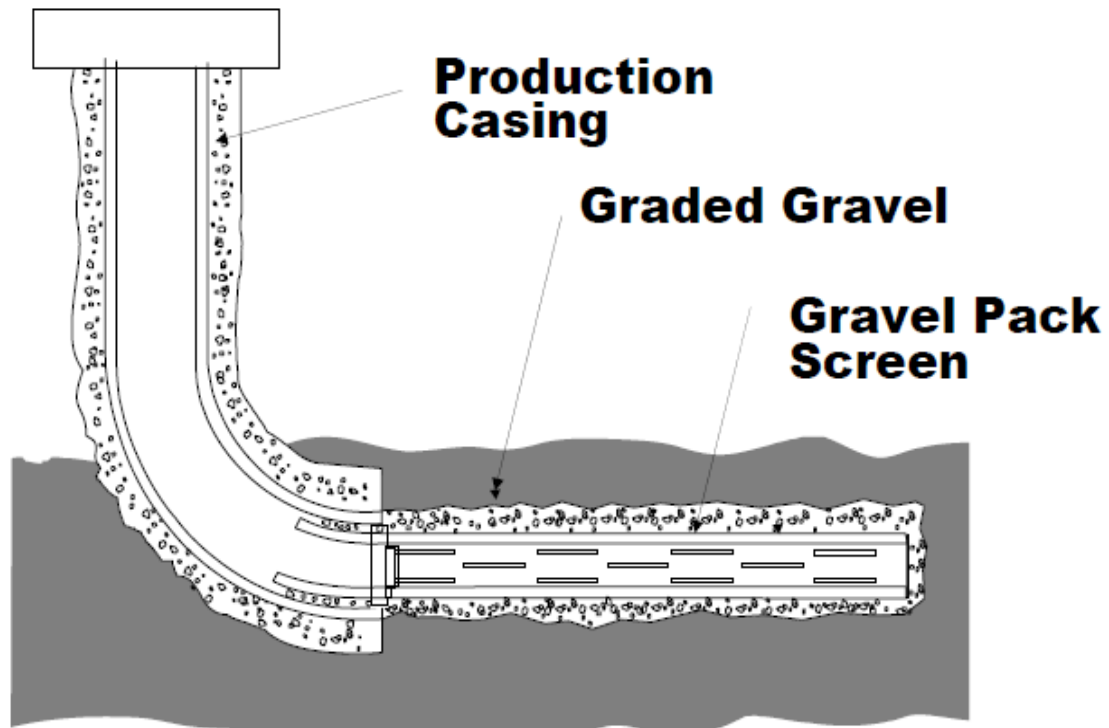
SLOTTED LINER



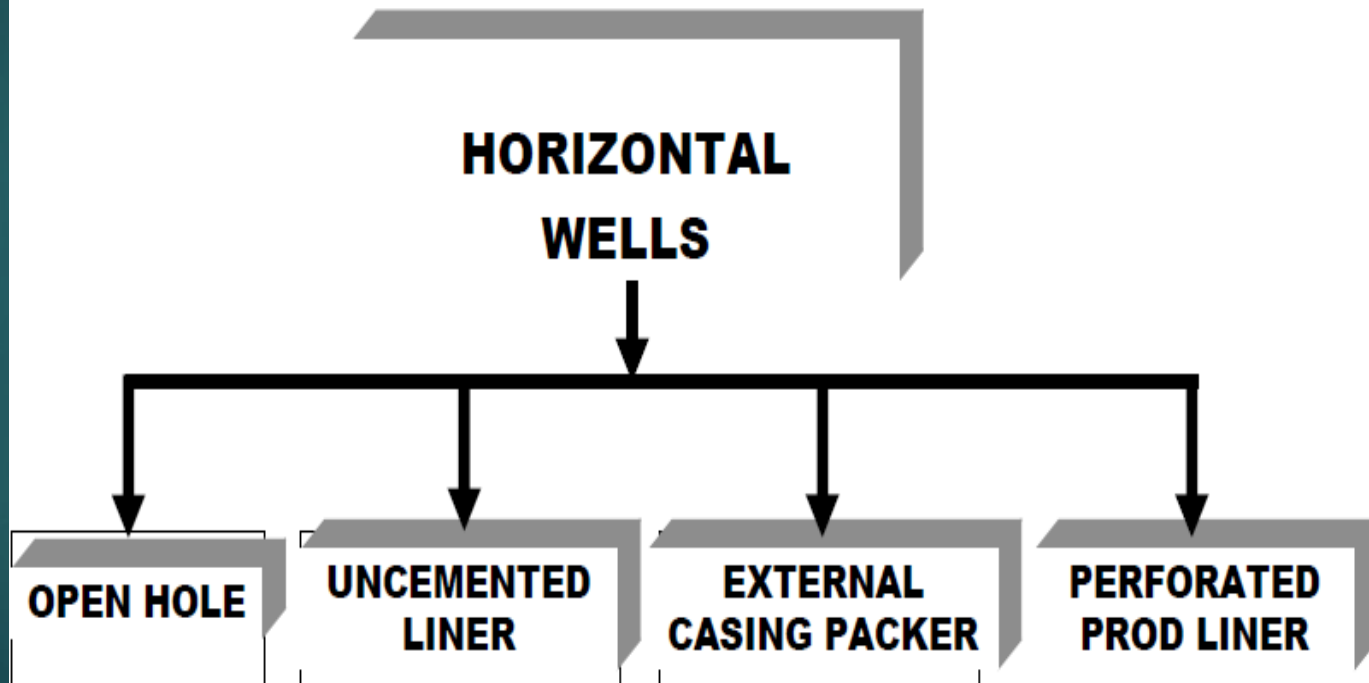
PRE-PACKED SCREEN



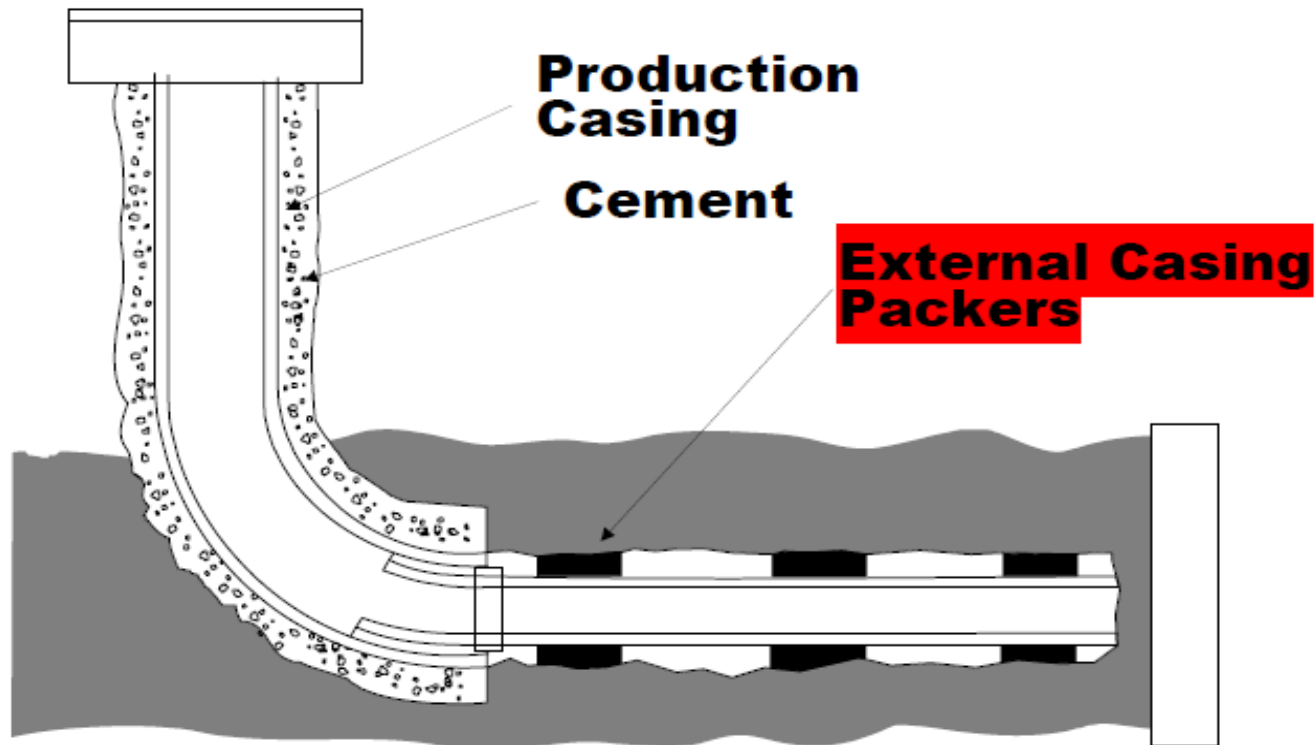
GRAVEL PACK



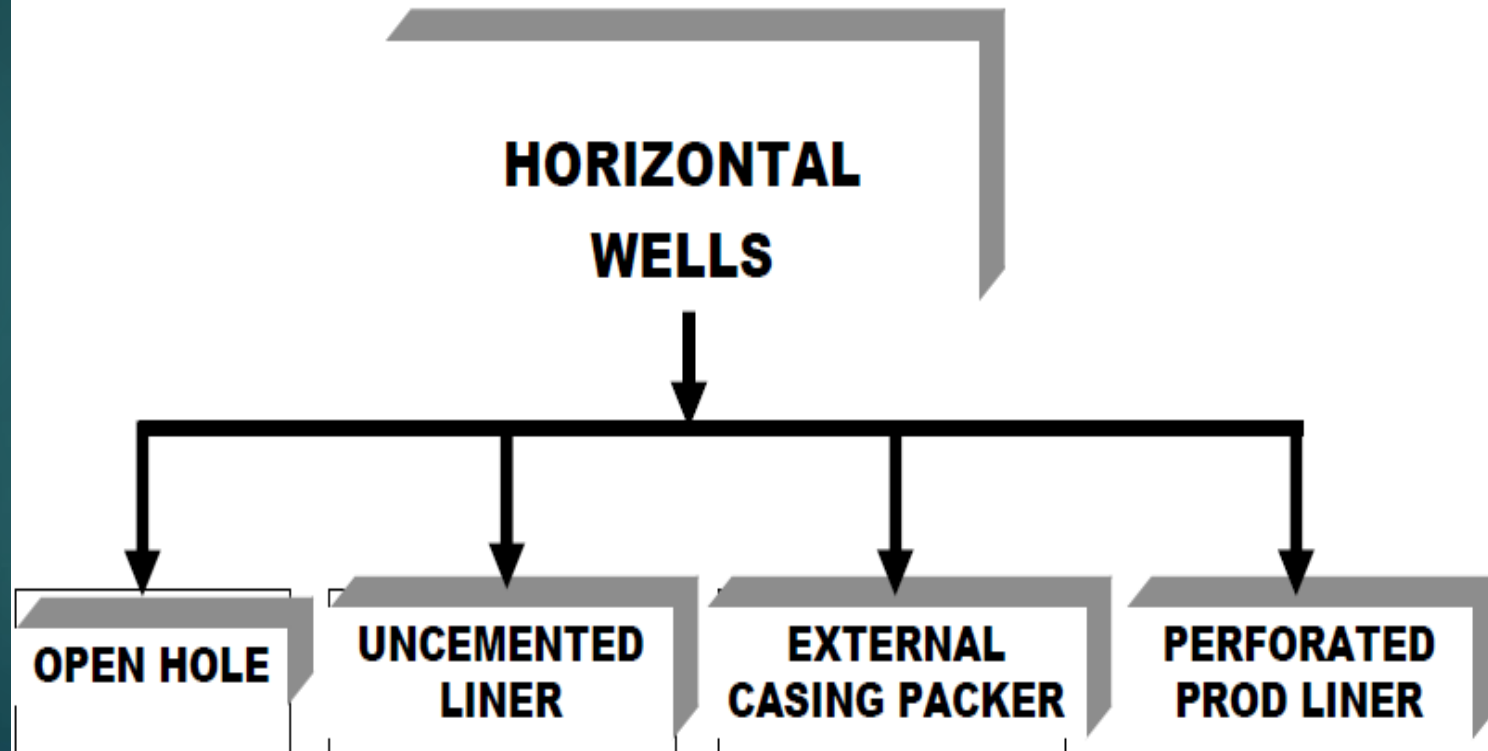
CLASSIFICATION OF COMPLETIONS



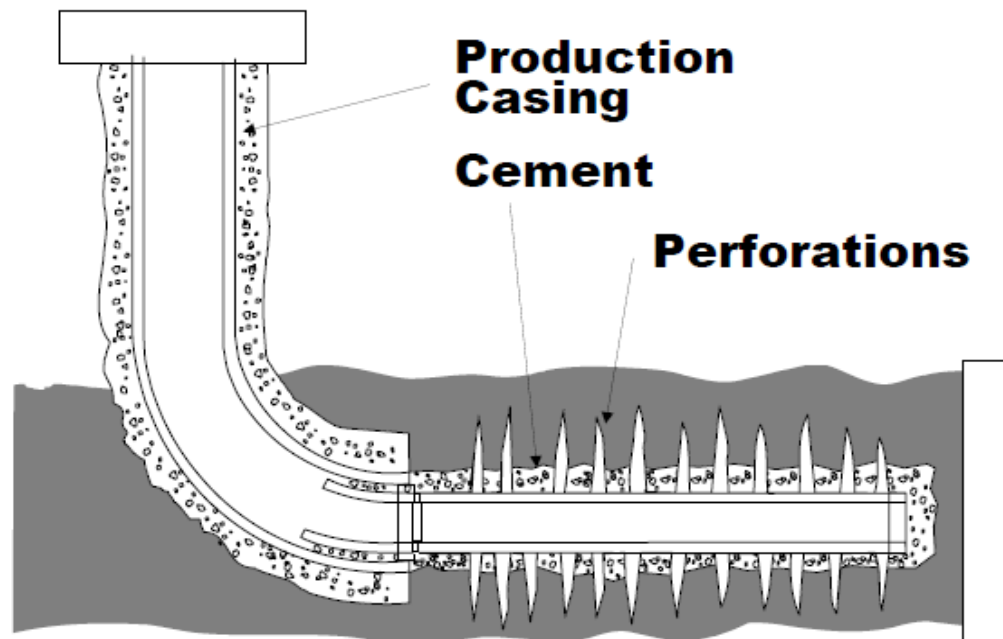
EXTERNAL CASING PACKER



CLASSIFICATION OF COMPLETIONS



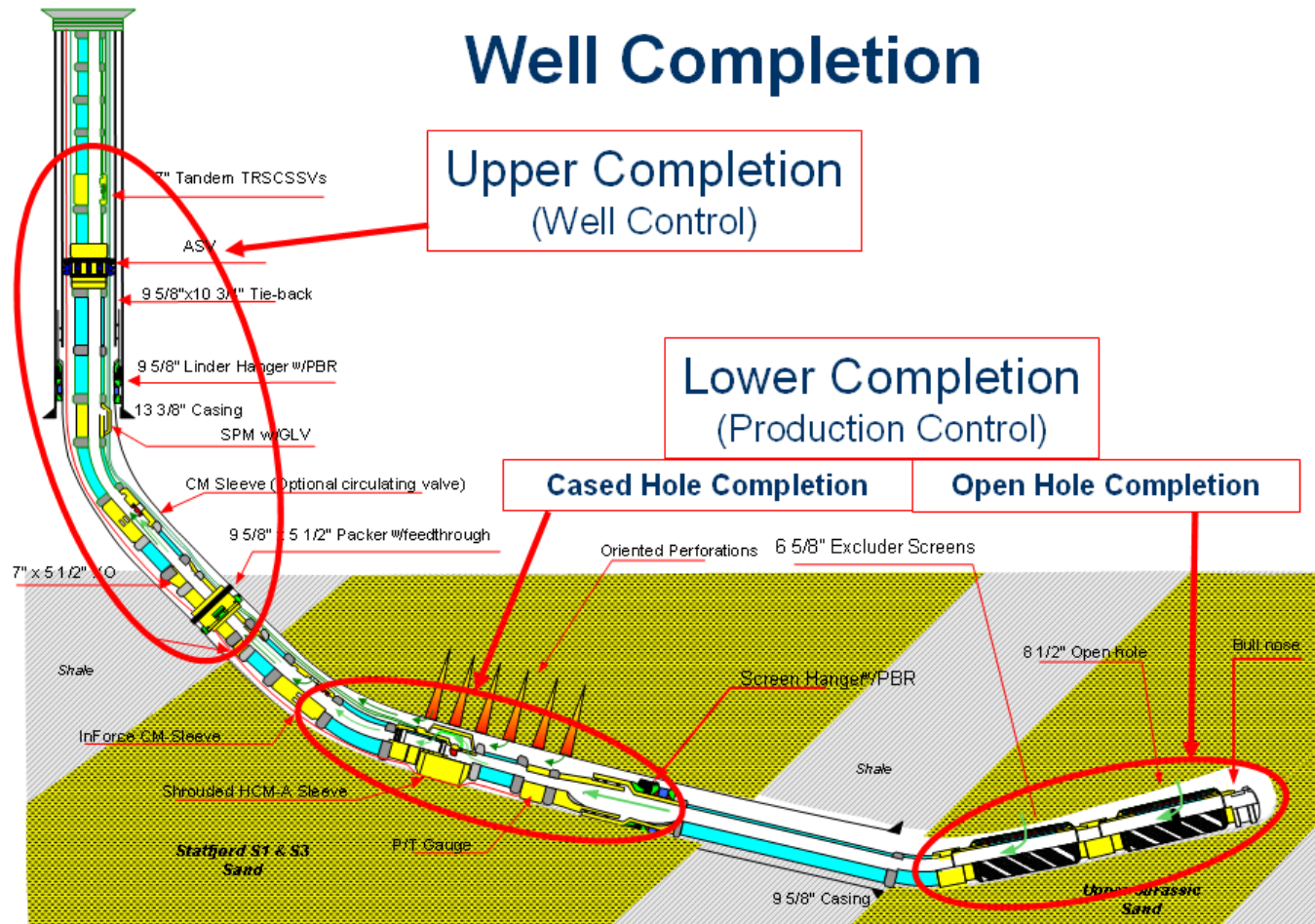
CEMENTED AND PERFORATED LINER



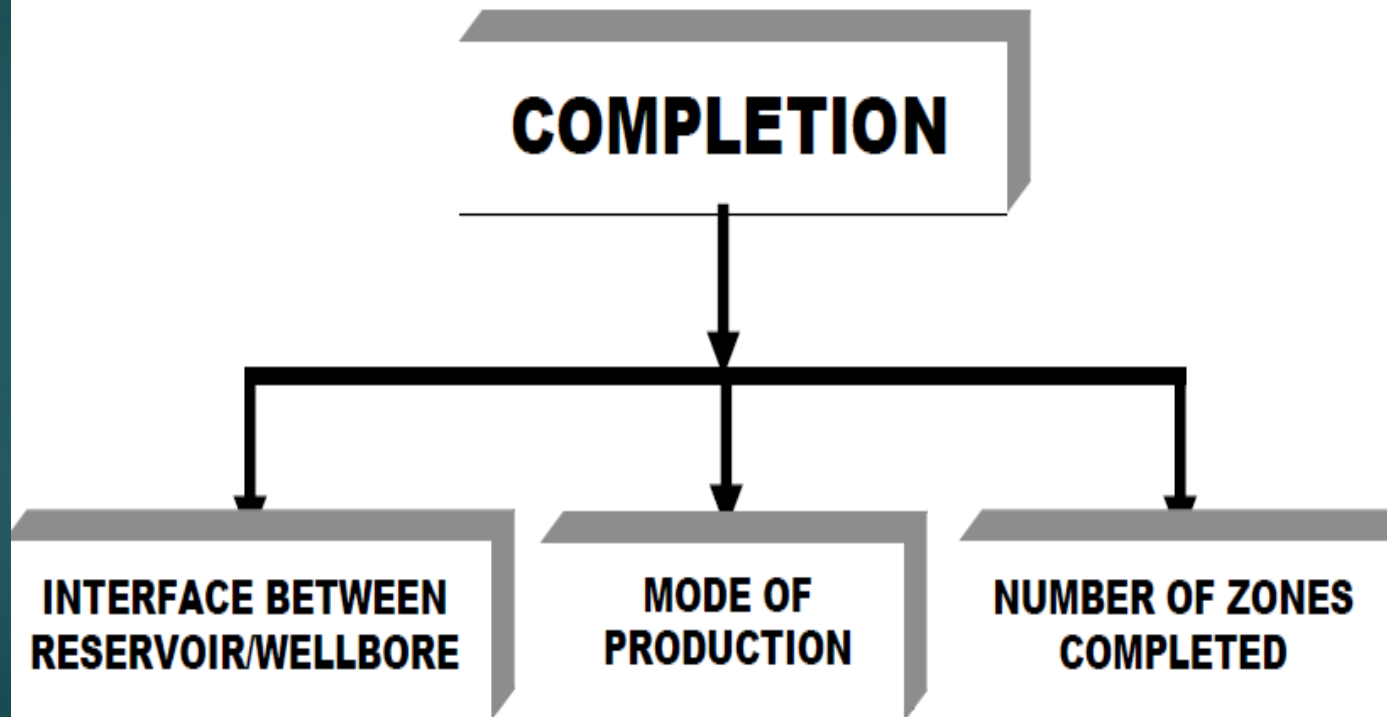
Well Completion

Upper Completion
(Well Control)

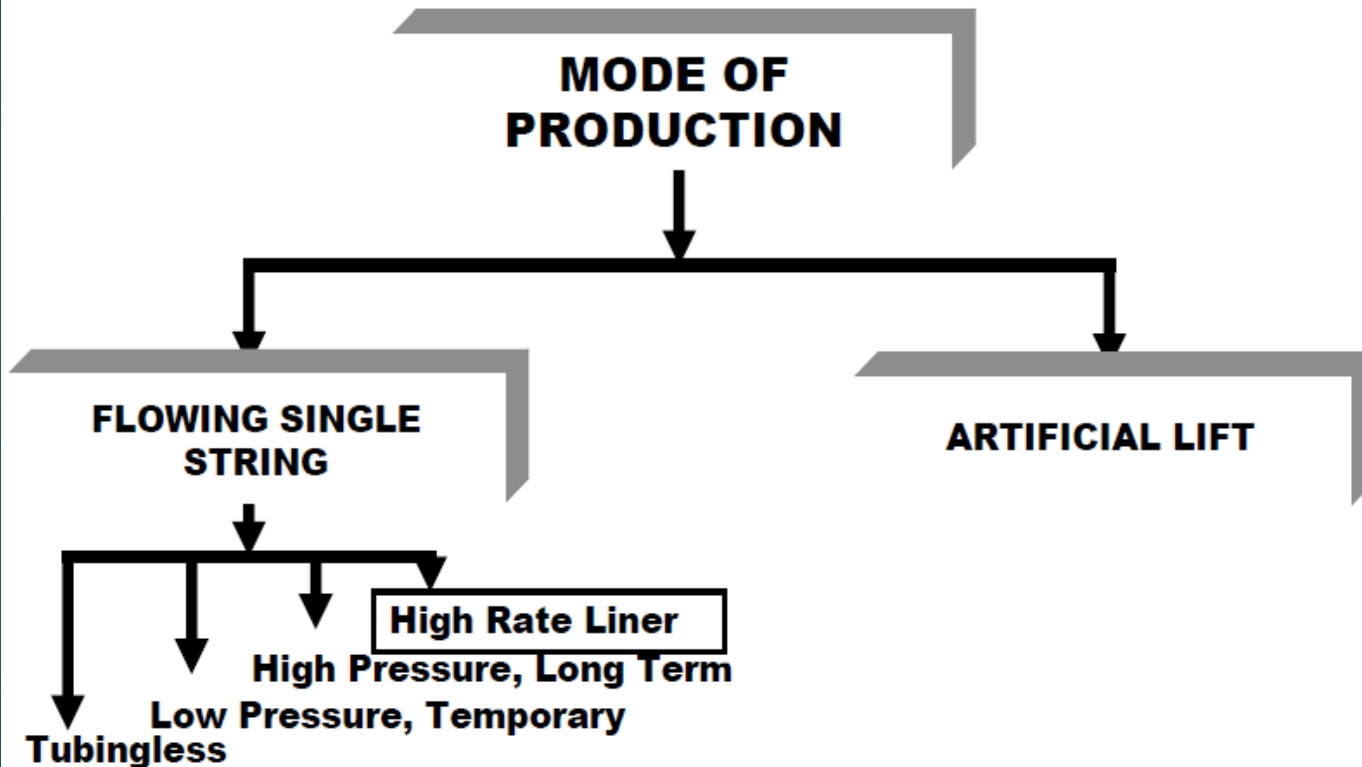
Lower Completion
(Production Control)



CLASSIFICATION OF COMPLETIONS

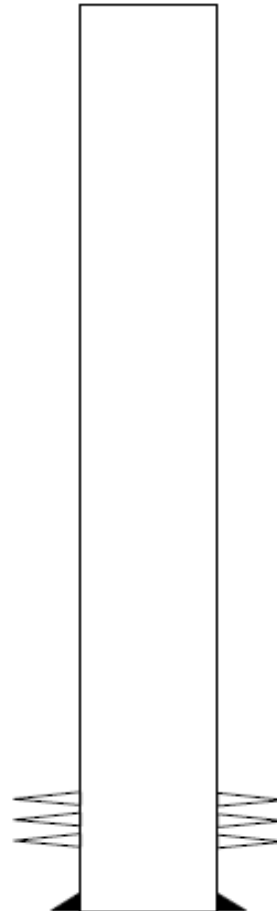


CLASSIFICATION OF COMPLETIONS

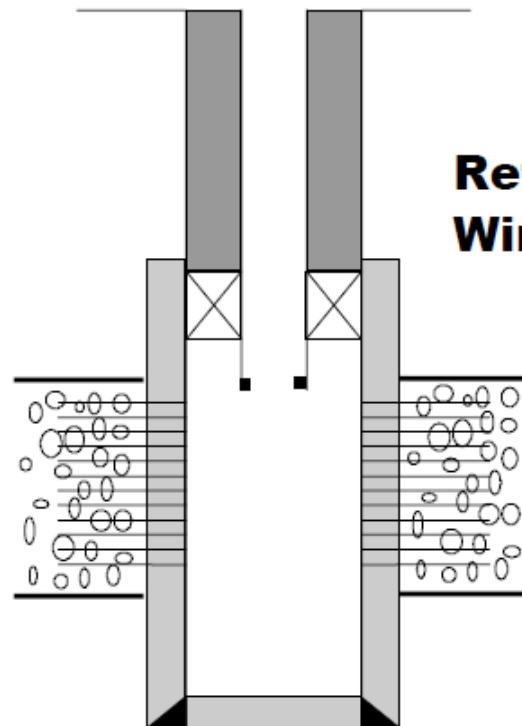


TUBINGLESS

**Small Sized Casing
Or Large Sized Tubing**

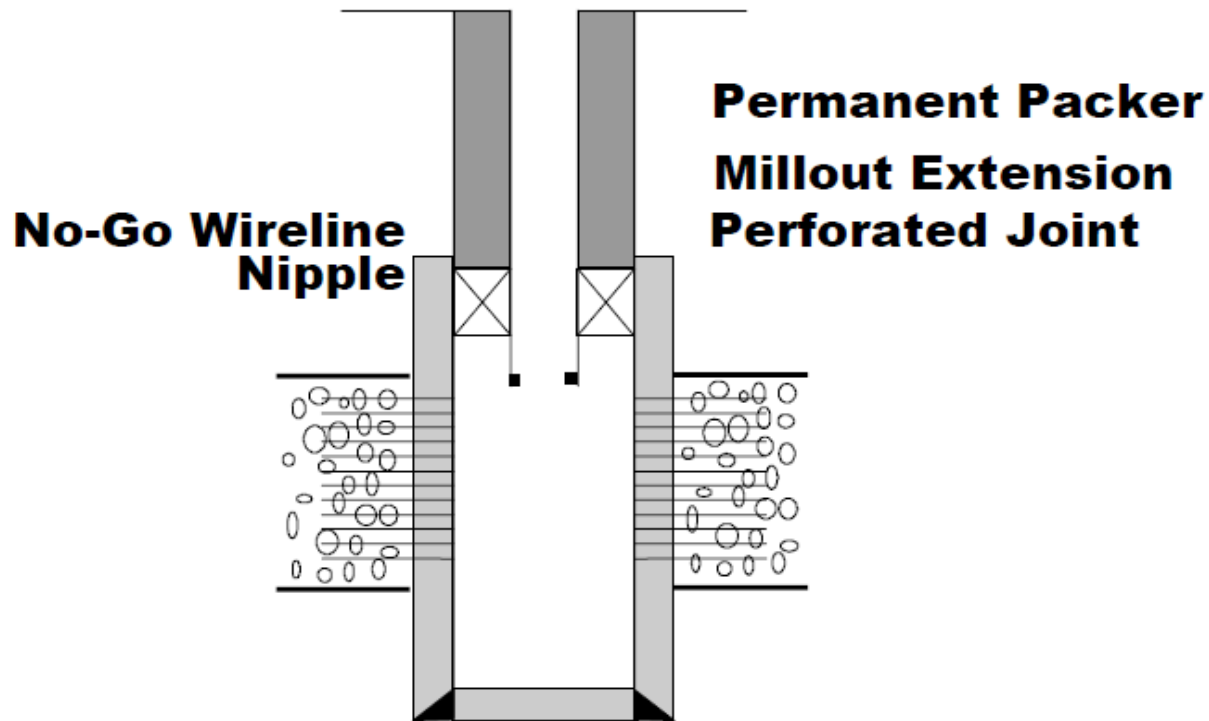


TEMPORARY TUBING

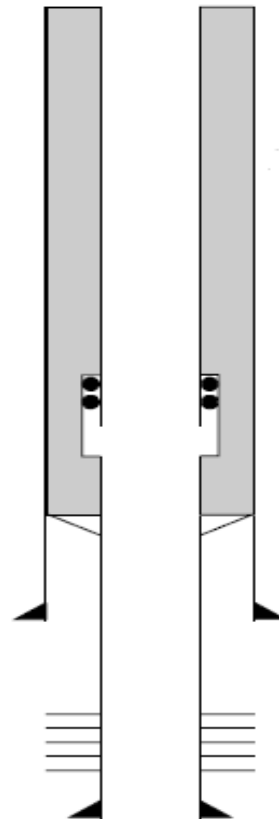


**Retrievable Packer
Wireline Nipple**

HIGH PRESSURE



HIGH RATE LINER (MONOBORE)



Liner Hanger

CLASSIFICATION OF COMPLETIONS

