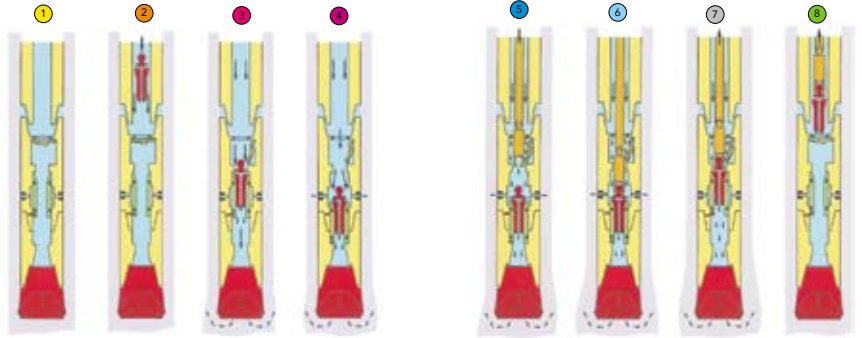
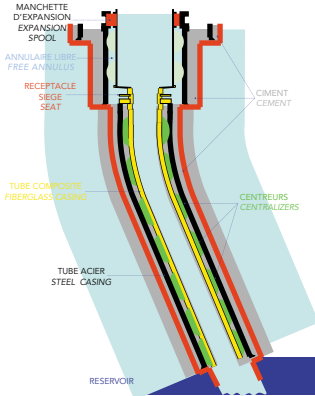


# INNOVATION DRILLING - COMPLETION - PRODUCTION



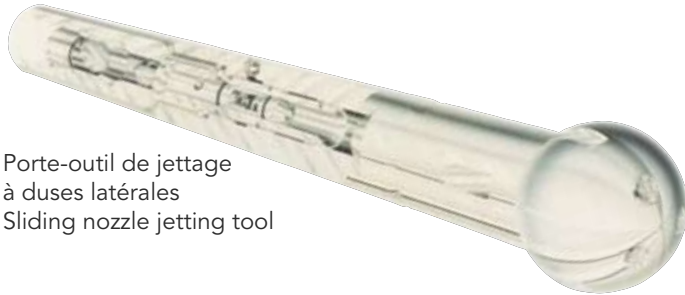
● First installed, Feb. 1995

PUITS TUBE ACIER/COMPOSITES  
COMBINED STEEL CASING/FIBER GLASS LINING WELL

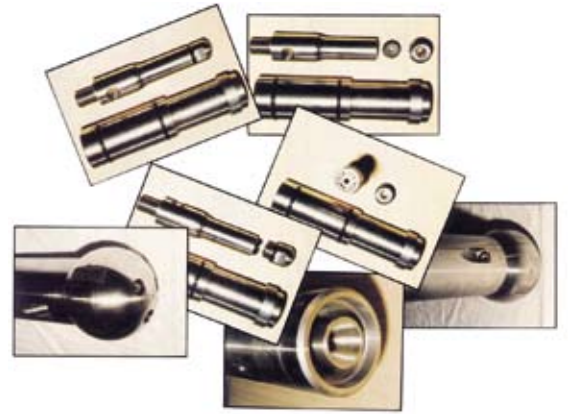


- ① Duses latérales de jettage et clapet anti-retour fermés. Lateral jetting nozzles and no return flap valves shut in.
- ② Descente de la bombe de libération des buses de jettage. Running in (go devil) of nozzle release bomb.
- ③ Clapet anti-retour ouvert. Reprise de la circulation (à travers l'outil seul). Flap valve open. Circulation (through rock bit alone) resumed.
- ④ Goupille cisailée. Bombe en butée. Duses libérées. Jettage latéral. Retainer pin sheared. Bomb on landing nipple. Nozzles freed. Equipressure duses/outil. Nozzle/bit pressure equalizing.
- ⑤ Descente au câble de l'outil de repêchage de la bombe. Running in the (wireline) bomb fishing tool.
- ⑥ Arrêt sur col de repêchage de la bombe. Tool catcher on bomb fishing neck.
- ⑦ Remontée de la bombe. Obturation des duses de jettage. Running off the bomb. Jetting nozzles sealed.
- ⑧ Remontée au jour de la bombe et fermeture du clapet anti-retour. Bomb pull out. Flap valve shut in.

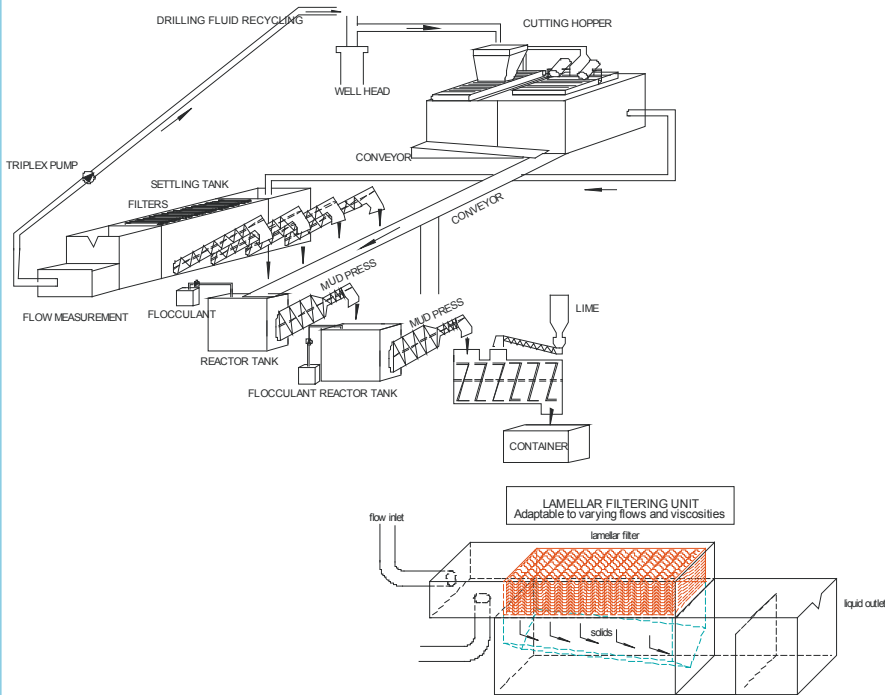
● Hydromechanical jetting tool for casing/completion clean up



Porte-outil de jettage à duses latérales  
Sliding nozzle jetting tool

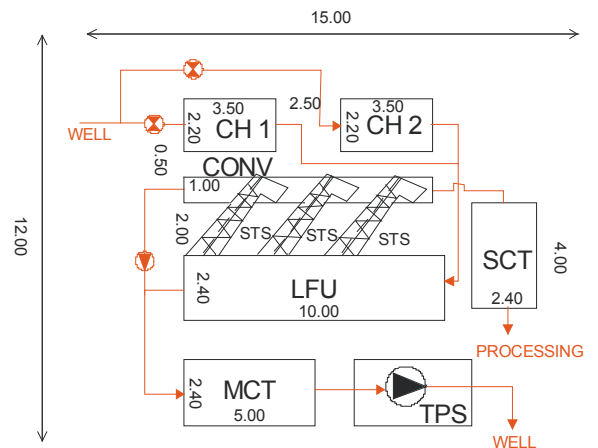


## MUD SOLID CONTROL LINE - ALTERNATIVE TECHNOLOGY

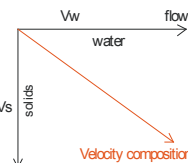
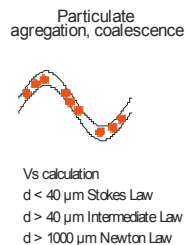
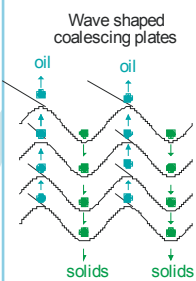


● Mud handling  
Alternative cuttings & solids control line

## ALTERNATIVE SOLIDS CONTROL LINE GROSS FIELD LAYOUT



- CH CUTTINGS HOPPER
- LFU LAMELLAR FILTERING UNIT
- SCT SOLIDS COLLECTOR TANK
- MCT MUD CIRCULATING TANK
- STS SOLID THICKENING SCREW
- TPS TRIPLEX PUMP SKID
- CONV CONVEYOR



Vs calculation  
d < 40 µm Stokes Law  
d > 40 µm Intermediate Law  
d > 1000 µm Newton Law

d (µm)	500	175	125	75	50	20	10
Vs (cm/min)	550	170	115	65	50	4.4	1.1
t (mm)	0.2	0.6	0.9	1.5	2.0	20	90
a recycling	85	28	19	11	8.5	0.85	0.2