

Title (en)

APPARATUS AND METHOD FOR FORMING AN ENLARGED UNDERGROUND ARCUATE BORE AND INSTALLING A CONDUIT THEREIN

Publication

EP 0209217 B1 19910724 (EN)

Application

EP 86303324 A 19860501

Priority

US 73372385 A 19850514

Abstract (en)

[origin: EP0209217A2] An apparatus and method for drilling a pilot bore hole (B) along an underground arcuate path (P) between two surface locations (O, E). The pilot bore hole (B) is drilled in one direction with a drill string (10) having a leading pipe section (10A) of a reduced diameter to provide increased flexibility. Upon completion of the pilot bore hole (B), a reamer (48) connected to a product conduit (46) is connected to the drill string (10). Drill string (10) pulls the reamer (48) and product conduit (46) along the pilot bore hole (B) in an opposite direction for enlarging the bore hole (B) to receive the product conduit (46). A spud bit (34) has a flat or blunt leading end portion (34A) with a discharge opening (34D) therein to discharge high velocity drilling fluid into the formation at a location offset from the longitudinal axis of the drill string (10) to assist in guiding the drill string (10). An in-hole hydraulic motor (70) is provided in an embodiment for rotating the drill bit (78), and the longitudinal axis of a drive shaft (74) for the drill bit (78) is offset from the longitudinal axis of the drill pipe string (10) to assist in a deviation of the drill bit (78).

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Cited by

EP0562147A1; DE19649572C2; GB2386139A; GB2386139B; EP0291193A1; EP0299624A3; EP0306112A1; BE1000905A4; US5778991A; DE10359880B4; US6491115B2; US6357537B1; WO9002242A1; US6516902B1; US6467557B1; US6470974B1; US6708783B2; US6942044B2

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