

The initial drill bit diameter was 120mm, but was changed to 150mm after severe clay balling problems were experienced. 180mm blade bits were used for precollaring during core drilling.

- A. 7.3.1 The main problem experienced during the exploration programme was clay balling. Clay balling is a term referring to clay cuttings which are not flushed from the drill hole and adhere to the hole wall or drill stem. This decreases the annulus between drill stem and hole wall so that with increasing depth advance cuttings cannot bypass the zone of decreased annulus. The cuttings form a collar completely blocking the drill hole. Hence no cuttings could be logged when this occurred.

Clay balling was caused due to the following factors:-

- (i) The water pump pressure and volume was insufficient to effectively clear cuttings from the drill hole.
- (ii) The drillers did not "spud" to clear the cuttings adhering to the hole wall. This compounded the problem created by the low water pump pressure and volume.

The term "spud" refers to repeatedly lowering and raising the drill stem whilst it is rapidly rotating. This clears clay cuttings adhering to the hole wall.

- (iii) Allowing cuttings to settle in the mud pit enabled the clays to disperse, thereby increasing the viscosity of the circulating medium. This decreased the uphole velocity of cuttings and added further to the clay