5.6 Summary of Baseline Water Quality in the Project Area

This section provides a summary of the water quality data that is based on the baseline monitoring data collected for this EIS and other available recent turbidity logger data within the Project Area.

5.6.1 Turbidity

Results for turbidity (monthly and continuous data) and suspended solids indicate that the Project Area is a naturally turbid system. The continuous logger data indicates that turbidity is regularly elevated above the QWQG (2006) and ANZECC (2000) guidelines. Turbidity logger data indicates the following characterisation of the Project Area:

- The median and 95th percentile turbidity ranges during the dry season in deep waters (approximately >2 m LAT) of the Project Area are 3-9 NTU and 11-35 NTU, respectively;
- The median and 95th percentile turbidity ranges during the dry season in shallow waters (approximately <2 m LAT) of the Project Area are 9 NTU and 30-90 NTU, respectively;
- The median and 95th percentile turbidity ranges during the wet season in shallow waters of the Project Area are 10-23 NTU and 127-176 NTU, respectively; and
- During the dry season the turbidity during spring tide conditions is 2-4 times those in neap tide conditions.

Though the data available indicates that the turbidity is substantially higher during the wet season, much less data has been collected over this period relative to the dry season (approximately 15% of all data). As such, it is possible that the wet season statistics may be heavily biased towards individual events during the wet season as the record is not sufficiently long to ascertain otherwise.

Nonetheless, two environmental variables appear to influence sediment concentrations in the water column in the Project Area; tidal state current speeds that induce resuspension of bottom sediments and wet season inflows from the catchment, both of which are natural events.

Monthly turbidity profiles (surface, mid-depth, bottom) for this EIS support the dry season deep water characterisation with a range of 5-30 NTU over four monthly field events.

The adopted relation between turbidity and TSS in Figure 5-17 is a piece-wise linear function, based on the largest and most consistent dataset available and is defined as follows:

- TSS = 1.12 x [turbidity] where [turbidity] is between 0 and 7 NTU; and
- TSS = 3.68 x [turbidity] – 17.92 where [turbidity] is greater than 7 NTU.

5.6.2 Water Quality

The majority of water quality parameters analysed from the vessel-based monitoring program were below the limit of reporting except for:

- One herbicide, metolachlor, exceeded the limit of reporting on six out of thirty-six recordings;
- One organophosphorus pesticide, chlorpyrifos, exceeded the limit of reporting on six out of thirty-six recordings;