

## **HYDROGEOLOGICAL SURVEY OF SURKHA [N] LIGNITE BLOCK – 2, UNDERGROUND LIGNITE GASIFICATION AREA – TAL. GHOGHA, DIST, BHAVNAGAR, GUJARAT – MARCH – 2012**

GMDC being leading company in mining of lignite in Gujarat state, plans to assess ground water conditions in and around Surkha (N) lignite block for proposed underground lignite gasification programme for which engaged M/s. Hydrominviron Consultancy Pvt. Ltd., Jaipur for hydrogeological survey of specified area.

Area under study falls mainly under salt flat and partly under Deccan plateau and Alluvial plain. Average rainfall at Bhavnaagar is 602.52 mm and Ghogha is 508.34 mm which is main recharging source of ground water. Main lithological unit present in the area is shale associated with minor sand / siltstone/ sandstone horizon. Lignite bands occur intercalated within tertiary shales, claystones.

On the basis of geological formations, area categorized in to hydrogeological units viz. Quaternary, Tertiary, Supratrappean formations and Deccan traps. Tertiary formations are present in large part of area forming a poor aquifer due to argillaceous nature of sediments.

Chemical quality of water samples collected reveals concentration of various parameters far beyond desirable limits of IS 10500, however falls under permissible limits for certain parameters in many samples.

### **Recommendations: -**

1. Pumping test reveals that aquifer formed by tertiary formations is under confined conditions and very poor, which is to be kept in view in future planning.
2. Long term monitoring of ground water levels in the area, twice a year (pre & post monsoon period) recommended in order to have seasonal ground water fluctuation.

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