山东大学学报(工学版) 2011, 41(1) 101-104 DOI: ISSN: 0412-1961 CN: 21-1139

土木工程

瞬变电磁预报方法在胶州湾海底隧道穿越F_{1-2}含水断层中的应用

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摘要:

瞬变电磁法对低阻体反应灵敏,是预报含水体较为有效的手段,所以利用瞬变电磁法对胶州湾海底隧道F_{1-2}含水断层进行探测,排除信号采集和数据处理中的各种因素,通过对所处理结果的分析,判定了F_{1-2}含水断层破碎带规模与位置,围岩风化程度、含水断层裂隙水发育情况,为超前预注浆加固提供了有效的地质信息。结合超前探孔、开挖后进行的地质编录,验证了本次瞬变电磁地质预报的准确性与有效性,对海底隧道含水断层的超前地质预报具有一定的借鉴和指导作用。

关键词: 瞬变电磁法 青岛胶州湾海底隧道 超前地质预报 含水断层

The application of TEM geological forecast about the F_{1-2} water-bearing fault of the Kiaochow Bay subsea tunnel

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Abstract:

Transient electromagnetic method is an effective way to predict the water for its sensitivity to the low resistance body, so it was used to detect the F_{1-2} water-bearing fault of the Kiaochow Bay subsea tunnel. The results were analyzed after excluding interfering factors in the signal acquisition and data processing. Finally the scale and location of theF_{1-2} water bearing fault、and degree of rock weathering、growth of water-bearing fault fissure water were determined, these parameters provide effective geological information for the advance pre-grouting reinforcement. The advance exploration hole and geological record of this section proved the accuracy and effectiveness of this prediction, which will also be a very good reference and guide for succeeding tunnel geological predictios.

Keywords: transient electromagnetic method Qingdao Kiaochow Bay subsea tunnel advanced geological prediction water-bearing fault

收稿日期 2010-07-26 修回日期 网络版发布日期

DOI:

基金项目:

国家自然科学基金面上资助项目(50874068)；国家自然科学基金资助项目(40902084)；山东省自然科学基金资助项目（Y2008F22）

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