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大连湾海底隧道钻爆法施工风险评估研究

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摘要　海底隧道具有复杂难以确定的地质条件和周围环境，因此施工和运营过程中影响工程进度、成本、城市环境和安全的因素众多，使得海底隧道的投资风险较大，目前风险管理理论在钻爆法海底隧道施工方面的应用还较为少见。以拟采用钻爆法施工的大连湾海底隧道为背景，在预工可阶段，针对推荐轴线的2种方案的施工风险进行了辨识、分析，并采用基于信心指数的专家调查法对风险进行评价，风险评估主要从南岸陆域段隧道施工、海域段隧道施工、北岸隧道施工及施工对周围环境的影响四个方面展开。根据风险评估的结果，对推荐轴线的2种方案进行了对比分析，得出预工可阶段推荐方案的风险较大。最后结合大连湾海底隧道施工风险的特点，提出风险控制措施以及相应的结论和建议，为工程决策中选线方案的确定和工程建设管理提供可靠的参考依据。同时，把风险管理理念应用到海底隧道建设中，为同类工程的风险评估提供参考。

关键词　海底隧道；钻爆法；风险评估
分类号

RISK ASSESSMENT ON DRILL AND BLASTING METHOD OF DALIAN BAY SUBSEA TUNNEL

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Abstract
The subsea tunnel has complex geology conditions and surrounding environments，so there are many factors that affect the advancing rate，cost，city environment and safety during the subsea tunnel construction and operation. However，risk management theory has rarely been reported on the construction of large-scale subsea tunnel excavated by drill and blasting method. With the background of Dalian Bay subsea tunnel excavated by drill and blasting method，it will focus on the two schemes during the stage of the feasibility of the project，identifying and analyzing the construction risks，evaluating the risks by using the survey from specialists method based on confidence index. The risk assessment is mainly carried on by the four aspects，i.e. the south shore land field tunnel construction，the subsea area tunnel construction，the north shore tunnel construction and the influence of the construction upon the surrounding environments. Based on the results of risk assessment，the risk of recommended scheme is large. Finally，according to the characteristics of the risks，some measures to reduce or control the risk loss are taken，and some conclusions and suggestions are also proposed. It gives some references to the selection of scheme line and construction management in the engineering decision. Simultaneity，the risk management theory to the construction of subsea tunnel should be adopted，which can provide references to the risk assessment of other similar engineering cases.

Key words　subsea tunnel；drill and blasting method；risk assessment

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