

Development of Risk-Based Standardized WBS (Work Breakdown Structure) for Preparatory, Instrumentation and Control Works of Coal-Fired Steam Power Plant Construction Project in Indonesia to Improve Time Performance

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Abstract

The development of electricity infrastructure is increasing every year because it is still a necessity for the community and is included in one of the programs for implementing the acceleration of National Strategic Projects. There will always be uncertainty in the process of implementing projects with EPC contracts because it is a project with a high level of complexity and there are risks that have an impact on project performance, one of them is the time performance of the project. Therefore it is necessary to identify the risks that may have an impact on the time performance in order to minimize the time performance which decreases so that the project can run on target. The number of problems with commercial operation date delays in the Coal-Fired Steam Power Plant project is due to several factors such as unfinished land acquisition, problems during commissioning tests, inadequate planning, work scope that is not completely defined in the contract causing miscommunication between parties, delays in the process of design approval and lack of coordination. It is necessary to develop a risk-based WBS to avoid poor time performance in the project implementation process. Because the WBS is an effective tool for project management in planning and successful project implementation. This study aims to develop a risk-based WBS standard for preparatory, instrumentation and control works of Coal-Fired Steam Power Plant construction projects to improve time performance. The data collected from a questionnaire survey to experienced contractors on a coal-fired steam power plant project. The results of this study are WBS standards for preparatory, instrumentation and control works in the Coal-Fired Steam Power Plant construction project down to the resource level. As well as the risk response from the highest risk factors that have been obtained to reduce, prevent, or eliminate risk events that are considered to reduce the time performance of the Coal-Fired Steam Power Plant project.

Keywords

WBS, risk factors, Preparatory work and instrumentation control work, Time performance and Coal-Fired Steam Power Plant.

Biographies

Fista Septianingtias is a student from Graduate program majoring construction management at the civil engineering department of the University of Indonesia. She graduated with a Bachelor of Engineering degrees at the Department of Civil Engineering at the University of Lampung. She once made research entitled Settlement Study on Bridge Pile Foundation Construction Based on Loading Standards for Bridges as one of the requirements for achieving Bachelor of Engineering degrees.

Leni Sagita Riantini is a Lecturer and Researcher at Faculty of Engineering, University of Indonesia, and also she occupy position as head of the management specialty association the Faculty of Engineering, University of Indonesia in 2021. She graduated with a PhD from the National University of Singapore. She often writes paper and her works

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Yusuf Latief is a Professor, Lecturer and Researcher at Faculty of Engineering, University of Indonesia. He teaches for Undergraduate, Graduate and Doctoral Programs. He often makes research on the specific theme of construction management or project management and publish these journals.