

Development of Review Processes and Tools for Liquidated Damages for EPC/Turnkey Project: Contractor's Perspective

Hahn, KiJeong¹ and Lee, Eul-Bum² and Kim, Young Ho³

Abstract: As a recent global trend, the majority of plant projects are delivered through EPC or EPC-turnkey contracts, where a contractor's liability is more complicated because of the mega size scale and financing method. Previous researches have been lacking a practical usability for project members for liabilities of contracts. Those were focused on solving the claims or schedule calculation issues only. The objective of the present study was to develop a validation process for LDs (liquidated damages) in contractor's liabilities with various case studies and expert judgments. As summarized in this paper, the processes and tools were developed with project life cycle process. The project preparation phase includes 3 step check lists to determine the Go or No-go for projects. In progress phase, contractors should focus on the response strategies for claims with liabilities. The study concludes that those developed processes and tools will help to manage risk of LDs for the contractors in the overseas projects.

Keywords: Risk, LDs (Liquidated damages), Liabilities, Process and Tools

I. INTRODUCTION

By the late 2000s, the Korea contractor's work for constructions in overseas had increased rapidly. Among these, the share of plant projects accounted for the largest portion. [1] When we examine the size of the orders, the mega size plant projects were on the increased along with the EPC (Engineering, Procurement and Construction)/EPC-turnkey contract type. [2] In addition, the owners prefer to PF(project finance) method for raising fund not the CF(corporate finance) of their company due to the mega sized scale and increased risk of project. Under these circumstances, the projects become complicated more and the risks for contractors to control are more increased than the traditional contract types. The Korea contractors had huge losses for these types of projects which were made from the middle east specially in recent years so, the companies have been suffering financial problems. [3] In this study, as a contractor, the authors developed the process and tools considering the characteristic of project to control the LDs and Liabilities which are significant to success of project.

II. BASIC BACKGROUND

LDs (liquidated damages) are defined as "an agreed price to be paid for breach or non-performance". [4] The LDs are necessary clauses for employer and contractors to reduce the obligation to prove real damages and predict the limitation of liabilities at the contract stage. LDs should be genuine pre estimate not the penalty as a punishment, in addition to being as a penalty; liquidated damages can be void or weak. [5] The authors found that the major items consist of LDs through the case study analysis including steel making plant, process plant, power plant and offshore plant as like below; these items can be modified to apply

the new project according the requirements from the employer and characteristic of project.

- DLD (Delay liquidated damages)
- PLD (Performance liquidated damages)
- Key Personnel
- Topside Weight

The clauses of liabilities are the critical facts to control the risk of project effectively. The contractors should consider and review the below major items in advance to reduce the risk of liabilities to raise the possibility of success for project.

- Exclusive Remedy vs Fail Safe
- Indirect and Consequential Damages
- Loss of Profit

III. TECHNICALITIES OF LDs

Based on the FIDIC (International Federation of Consulting Engineers), we suggested important factors to control by the project members during the execution of project phase. The factors can affect the effectiveness of LDs and limitation of Liabilities. For these factors, in some cases, the EOT (extension of time), Off Take Agreement and Concurrent Delay can void the LDs clause. The contractors should review the Civil law comparing the prototype of contract (FIDIC) in which the contractors can find out the contractual risk including Time barring and duration of liabilities.

- EOT, Time At Large
- Time Barring
- Period Assessment
- LDs(Liquidated Damages) vs Unliquidated Damages
- Contingency
- Local Governance Law
- Off Take Agreement
- Concurrent Delay

¹ Researcher, Graduate School of Engineering Mastership, POSTECH, South Korea, kjhahn@postech.ac.kr

² Professor, Graduate School of Engineering Mastership, POSTECH, South Korea, dreblee@postech.ac.kr (*Corresponding Author)

³ Senior Manager, POSCO E&C, 307 Jungheung-ro, Buk-Gu, Pohang-Si, 791-841, Korea, kyhha@poscoenc.com

IV. RESULT

In this study, we propose the review process and tool by project life cycle phases how to control the LDs and Liabilities as a contractor. We aimed to the cycle of preparation and execution of project life cycle. The results were reviewed by case study analysis and recommendation of experts. In preparation of contract, the contractors will identify and assess the LDs and Liabilities of contract after that the CEO and project manager can decide the Go or No-go of project considering the riskiness. The proposed process and summarized description is listed in Table I. At the first step, parties can identify the basic information of contracts as like funding method and characteristic of contract. During the assessment step, parties could have to evaluate the reasonable amount of LDs and confirm the clarity of process and method for LDs and Liabilities with expert recommendation from the lawyer and finance person. Parties can determine the participation of project with reasonable contingency and strategy for project from their organization at the decision step.

Table I Review process for LDs related during the contract stage

Step	Description	Person in charge
1Step (Identification)	Project structure LDs amount review Contract condition check	Sales person Project manager
2Step (Assessment)	Reasonable LDs amount review Contract conditions assess Identify the project risk	Project manager Contract control manager Finance and legal person
3Step (Decision)	Contingency amount Plan for risk Strategy of negotiation	CEO Project manager

In this study, we developed the tools as like Table II, Table III and Table IV to control the review process and enhancing the possibility of success by contractors. The tools consist of basic check list, major check list and integrated check list to reflect the maturity of project organization and features of project. The tools can be used by modification.

Table II Basic Check list (1) for Assessment

No.	Item	Description
1	DLD	Application rule and amount
2	PLD	Application rule and amount
3	Combined LDs	Penalty possibilities
4	Key personnel LDs	Application rule and amount
5	Any others for LDs	Application rule and amount

Table III Major Check list (2) for Assessment

No.	Item	Description
1	LDs	LDs rate, Amount
2	Estimating Process	Estimating Process for LDs amount
3	liabilities	Limiting liabilities
4	Exclusive remedy	Apply or not
5	Fail safe	Apply or not
6	EOT (extension of time)	Apply or not, Clarity
7	Indirect/Consequential damages/LOP	Apply or not
8	Time barring	Limitation of legal liability
9	Period assessment	Effective date, Completion date and period assessment

Table IV Integrated Check list (3) for Assessment

No.	Item	Description
1	Certainty of LDs	Certainty of LDs
2	Prevention principles	Possibility of Penalty
3	Contingency	Contingency for risk
4	LDs administration	Process, Schedule and procedure
5	Governance law	Conflict between governance law

In carrying out the project, all members including engineers of project will understand the major clauses of contract related LDs and Liabilities and follow the guidelines for reducing the risk of project. Table V shows the basic facts for all members to understand and controlling.

Table V Liabilities understanding for execution stage

No.	Description
1	Understanding of LDs (DLD, PLD, Key Personnel, Top side weight)
2	Understanding of Limiting liabilities and controlling
3	EOT controlling
4	Period assessment understanding and controlling
5	Understanding of prevention principles
6	Reasonable contingency control

At the same time, project members should consider the claim events with the relevant documents or evidences for the LDs and Liabilities when the issues of liabilities could not be solved with relevant parties. For the preparation of claim, the contractors should check and find the response plans considering the follow factors;

- Process and methods
- Systematic calculation of loss
- Integrated consideration for project

V. CONCLUSION AND LIMITATION

The study concludes that those developed processes and tools will help to manage risk of LDs for the contractors in the overseas projects. The limitations of this study include assessing the expert judgment with limited contractual documents. For this reason, the limitation warrants future studies using multiple project teams and related documents to examine a more usability for the developed process and tools. Also, further studies should rely on not only organization's features for project but also characteristics which are unusable to control to derive more significant results.

ACKNOWLEDGEMENT

This research was supported by the Korea Institute for Advancement of Technology grant funded by the Korea Government - Ministry of Trade Industry and Energy. (2015 Establishment of GEM, No. H2001-13-1001)

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