

# THE STUDY ON THE PROBLEMS OF MARITIME FACILITIES(GAS PLANT) INSURANCE REGULATIONS

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**ABSTRACT:** The purpose of this study is to provide the problems of insurance system of maritime facilities(Gas Plant) in Korea. In order to find out the problems of insurance system of construction work, the literature research and case study on the maritime facility construction are adopted as research method. And this study analyzed the construction cases of maritime facilities(Gas Plant) to which the national contract law was applied for the first time. The findings of this study are as follows: In the case analysis of 00 facility construction, the contractor pay additional insurance fees for the construction. And the regulations on insurance registration are not stated clearly relating to the enforcement ordinance of the national contract law.

*Keywords: Construction Insurance Regulations, Maritime Facilities, Gas Plant, National Contract Regulations*

## 1. INTRODUCTION

### 1.1 Study Background and Purpose

According to the open-door policy of domestic construction market based on the governmental procurement agreement of WTO, Korean government has tried to improve the domestic construction business system in order to cope with the radically changing global construction environment, which has been induced with the development of construction market in 1997. Although the significance of construction business upon national development is crucial and the magnitude of construction market is huge, the domestic construction insurance regulations are unsatisfactory in its reflection of insurance attributes and construction business characteristics, thus making its systematic development delayed.

Every construction work has its own unique risks and the magnitude of risks is diverse. However, the domestic construction insurance regulations do not take these variances into account. The domestic construction insurance is prescribed in the article 5 of the Specific Construction Contract Condition ( I ): "A contractor must get a construction damage insurance or an assembly

insurance<sup>1</sup> according to the provision of article 5 of the enforcement guidance & general conditions of construction damage insurance (an established rule for accounting) before the date of starting the construction<sup>2</sup> (paragraph 1) and "the insurance clauses must be a British method for downtown works and a German method for other works" (paragraph 3). However, this German method has been instituted for the sector of inland facility construction and therefore is practically impossible to be applied to the sector of maritime facility construction. In this regard, it is necessary to clearly analyze the problem of maritime facility construction and then improve its construction insurance regulations and insurance clauses, prescribed in the national contract law. Therefore, the aim of this study was to examine the problem of insurance regulations for maritime facility construction, focusing on construction insurance-related laws and ordinances and a case of maritime facility construction.

<sup>1</sup> A comprehensive insurance which covers material damage unexpectedly occurred in the subject materials of construction during various assembly works and also compensates the damage occurred in the third party. As for its subject construction works, there are machinery installation, equipments, oil refineries, petrochemical plants, power plants and so on.

<sup>2</sup> In case of such construction work in which non-insurance work is included, the date is the starting date of insured construction work.

The purpose of this study can be summarized as follows:

- 1) Examine construction insurance-related laws and ordinances and a case of domestic maritime facility (Gas Plant) construction
- 2) Find out the problem of construction insurance regulations on the basis of above examination.

## 1.2 Study Procedure and Method

This study is carried out by following procedures and methods (figure 1).

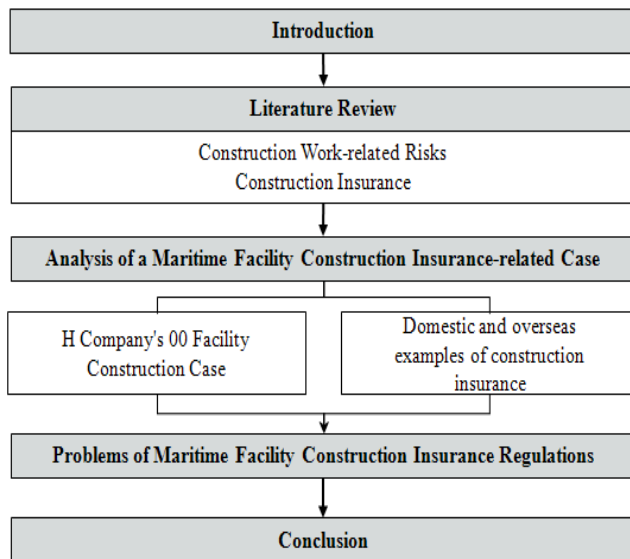


Fig 1. Study Procedure and Method

## 2. THEORETICAL EXAMINATION OF CONSTRUCTION INSURANCE REGULATIONS

### 2.1 Construction Work-related Risks

#### 2.1.1 The Characteristics of Construction Work

Construction work involves very dangerous factors in its practice (influential factors: natural, economical, societal and political environment)

#### 2.1.2 Accompanying Risks

As for common risky factors in a project construction, there are human casualties and injuries, material damages and losses, financial losses and delayed completion. (Project construction-related risks: On-site materials, machinery and equipments, and human beings)

### 2.2 Construction Insurance

#### 2.2.1 Characteristics of Construction Insurance

Construction insurance covers a variety of construction works of which amount comprises from several hundred billion won to small amount of money. Because the kind, method and content of construction work are diverse, construction insurance is sometimes difficult to be applied standard insurance clauses and premium rates. A constructor usually assumes the responsibility for the project-related activity and safety according to a written contract. Therefore, a constructor can shift insurable risks.<sup>3</sup>

#### 2.2.2 Kinds of Construction Insurance

Construction insurance includes construction work insurance and assembly insurance in general. Therefore, construction insurance is classified into construction work insurance and assembly insurance by the kinds of construction work—the subject of insurance.

#### 2.2.3 Construction insurance-related insurance

As for construction insurance-related insurance, there are contractor liability insurance, worker accident compensation insurance, movable property comprehensive insurance, machinery insurance, transportation/deficit insurance, automobile insurance, tender security insurance, performance security insurance and so on.<sup>4</sup>

## 3. ANALYSIS OF A MARITIME FACILITY CONSTRUCTION INSURANCE-RELATED CASE

In this study, a representative domestic maritime construction case(Gas Plant) is examined, together with an analysis of domestic construction work insurance-related laws & ordinances and insurance clauses.

### 3.1 H Company's 00 Facility Construction Case

#### 3.1.1 Outline of 00 Facility Construction

00 facility construction was to construct a variety of facilities of which purpose was to discover natural gases of fine quality in the area of the East Sea and manufacture and supply it stably. The outline of 00 facility construction is as follows:

<sup>3</sup> In case of avoiding huge accident-oriented huge losses posteriorly, unexpected accident-oriented deficit, or situational risks in which the construction work cannot be carried out, a contractor can shift them to insurance companies.

<sup>4</sup> Korea Insurance Development Institute, A Practical Guidance of Construction Insurance, 1999. 4.

**Table 1.** Outline of 00 facility construction

Division	Contents		
Name	00 -1 Gas Production Facility Construction		
Term	2000. 10 ~ 2004 .05		
Amount	204,381,000,000 Korean won [design + construction]		
Contract method	Comprehensive tender of design and construction [Turnkey]		
Contents	Basic and execution design of submarine, maritime and inland production facilities, purchase of materials, plant manufacturing, transportation, on-site installation and construction, connection and trial run		
	Submarine and maritime facilities	Platform: Pile, jacket, deck (including module), attached facilities (convenient facilities, a landing field of helicopter) and so on.	
		Maritime production facilities: Separator, water removal system, hydrate prevention facilities, flare stack, dynamo system and so on.	
	Size	Submarine pipeline facilities	Submarine facilities: Connecting pipeline from X-MAS Tree to platform, umbilical line and production control system.
		Submarine pipeline facilities	About 60 km, making it 14B in consideration of connecting development
inland production facilities		Separating facilities of gas and condensate, storing and shipping facilities of condensate, selling facilities of gas, aquatic substation, fire extinguishing facilities and so on.	
Buildings	Administrative building, dining building, control room, substation, repair room, guardroom, pump room, watchtower and so on.		
Attached facilities	Road and parking facilities, fire extinguishing water tank, breast wall, fence, rain and sewage treatment facilities and so on.		

**3.1.2 Insurance State of Case Construction**

H Construction Company consulted with some insurance companies in order to get construction insurance according to the above condition presented by 00 Public Corporation—an ordering party. However, all the insurance companies consulted regarded 'the German insurance clauses' prescribed in the paragraph 3 of article 6 of the Specific Construction Contract Condition ( I ) as unsuitable to apply to maritime facility (Gas Plant) construction except its inland portion of construction, for it was originally designed to apply to inland facility construction. So, H Construction Company had to get its construction insurance with 'British insurance clauses' (Wellington 2020 Wording) which were uniquely specialized to cover maritime facility construction-related risks and applicable to the said 00 facility construction. The insurance status of 00 construction is shown in the table 2.

**Table 2.** The Insurance Status of 00 Facility Construction

Division	Contents	Remarks
Tender guidance & contract condition	-Apply German clauses as insurance clauses.	-Article 6 of the Specific Construction Contract Condition

Problem	- The coverage of German clauses for construction insurance, a requisite of tender guidance, is limited to the portion of inland facility construction.						-the provisions of article 9 of enforcement guidance of the construction damage insurance (an established rule for accounting. 220-154/98. 02. 20))		
	- The German clauses for construction insurance do not cover the design, manufacturing, transportation, installation and trial run of maritime platform. It does not cover the transportation and installation of submarine pipeline for gas transfer.								
Insurance status of construction insurance	- By dividing contract amount into that of inland and that of maritime, got construction insurance by the maritime comprehensive insurance clauses (WELCAR 2001) and the German method insurance clauses.								
Contents of construction insurance	Maritime portion (maritime comprehensive insurance clauses)				Inland portion (German method insurance clauses)		-Private supply materials and cable crossing		
	Date	Insured amount	Fee	Rate	Date	Insured amount			
Initial taking (①)	02.01.31	105,800,000\$	3,001,500\$	2.84%	02.01.31	24,200,000\$	205,700\$	0.85%	- Private supply materials and cable crossing
First extension (~03.11.30)	03.05.15	-	263,950\$	-	03.06.18	-	2,178\$	-	
Second extension (~04.05.31)	03.11.28	-	536,000\$	Exact calculation	03.11.28	-	20,812\$	Exact calculation	
Sum	-	105,800,000\$	3,801,450\$	3.59%	-	24,200,000\$	228,690\$	0.95%	
Standard of contract condition(②)	-	105,800,000\$	899,300\$	0.85%				-Initially applied the rate of inland construction insurance (German method insurance clauses)	
Insurance clauses-based difference of fees	①-②		2,102,200\$	1.99%	- Applied the adjustment of contract amount			-	

**3.2 Domestic and overseas examples of construction insurance**

**3.2.1 Construction insurance-related domestic laws & ordinances and insurance clauses**

Started in 1965 with the construction insurance clauses of Korean alphabet, the domestic construction insurance introduced the British insurance clauses of English alphabet in 1968 and then the German insurance clauses of English alphabet in the early days of 1970s. Since Korean alphabet and English alphabet insurance clauses were different in its contents, German method Munich Re insurance clauses of English alphabet were translated into Korean in 1989 and then substituted it for the existing construction insurance clauses of Korean alphabet in

order to solve the inconvenience of content difference<sup>5</sup>. Thus, German method insurance clauses have been used since then. However, these insurance clauses do not take the reality of domestic construction business into account and cause many problems. Therefore, it is necessary to improve domestic construction insurance clauses at the moment. In this vein, domestic construction insurance-related laws & ordinances were analyzed in this study. The outline of analysis is shown in the table 3:

**Table 3.** Domestic construction insurance-related laws & ordinances

Laws & ordinances	Contents
Enforcement Ordinance of National Contract Law	Article 53 prescribes the taking out of damage insurance at the time of contract and presents other related provisions.
Enforcement guidance of construction damage insurance	Present the methods of putting insurance fees in the budget and calculating insurance rates, and the procedure of taking out insurance for public officials who are in charge of contract.
General construction contract condition	Article 10 prescribes the use of insurance money, the time and method of taking out insurance, and the cancellation of an insurance contract and its succession.
Specific construction contract condition	Article 5 prescribes the provision of insurance clauses, the submission of risk report, and the increase and decrease of insurance amount.

**3.2.2 Overseas Construction Insurance Regulations**

Both the United Kingdom and the United States do not differentiate among civil engineering work, construction work and assembly work in construction-related insurance, using only an insurance policy, whereas Germany and Switzerland differentiate assembly work from civil engineering work and construction work, using different insurance policies. Overseas construction insurance regulations can be summarized as table 4.

**Table 4.** Construction-related Insurance by Nations<sup>6</sup>

Nation	Sector	Public work (road, tunnel, dam, and harbor)	Construction work (building and factory)	Assembly work (machinery & equipments, structure and plant)
Germany		Construction's All Risks Insurance (CAR)		Erection All Risks Insurance (EAR)
U.K.		(CAR)		
U.S.A		Builder's All Insurance, Inland Marine Insurance		
Switzerland		(CAR)		(EAR)
Japan		Public work insurance	Construction work insurance	Assembly work insurance

<sup>5</sup> Song D. H., A Study on the Activation Strategy of Construction Insurance regulations, Myongji University, 2001, 12..

<sup>6</sup> Kim Y. D., Construction Disaster & Construction Insurance, 「Disaster Prevention & Risks」, Korean Fire Protection Association, No. 69, 1996, pp. 55 ~ 59

Korea	Construction work insurance	Assembly work insurance
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**4. PROBLEMS OF MARITIME FACILITY CONSTRUCTION INSURANCE REGULATIONS**

**4.1 Problems of H Company's 00 Facility Construction**

**4.1.1 Budget Problem**

00 Public Corporation—the ordering party of 00 facility construction—already laid down insurance clauses at the time of on-site explanation of the said Gas Plant construction. They prescribed the estimation of budget must be based on actual trade amount or accomplished work-oriented actual construction amount. However, the said facility construction is first maritime construction work in Korea and it is difficult to estimate budget. So, the budget must be estimated on the basis of appraised value, actual trade amount of similar articles, works and services, or assessed value. In addition, would-be insured subjects must be designated and adequate construction insurance fees which correspond to the insurance amount of the subjects must be put in the budget. However, 00 Public Corporation did not recognize these situations and did not accurately put the construction insurance fees in the budget, thus making the contractor being at a disadvantage.

**4.1.2 Problem of Insurance Term Establishment**

At the time of contract, 00 Public Corporation decided 'German insurance clauses' as the insurance clauses of the facility construction and made the constructor taking out construction insurance. However, 'German insurance clauses' have been widely used in the inland facility construction and are unsuitable to apply to the maritime facility construction. In case of using 'German insurance clauses' inevitably, it is necessary to clearly state an exemption clause for maritime risks on the clauses. In this case, maritime risks are not the subject of reinsurance and therefore cannot have the benefits of insurance.

**4.2 Problem of National Contract Laws & Ordinances**

**4.2.1 Problem of Enforcement Ordinance of National Contract Law**

Article 53 of the Enforcement Ordinance of National Contract Law clearly prescribes a construction insurance-related provision (taking out damage insurance). But this

ordinance does not clearly state the procedure and scope of taking out insurance. Especially, whether to be insured or not at the time of contract is left to the discretion of public officials in charge, thus providing a cause of conflict between both parties of contract.

#### **4.2.2 Problem of Enforcement Guidance of Construction Damage Insurance**

In case of the said facility construction, even if the contractor takes out construction insurance in order to expand the coverage of insurance, there is no way of being paid the difference of construction insurance fees. Because of this provision, the ordering party can intentionally avoid paying the difference of construction amount and there is no way for the contractor to adjust the difference of insurance fees. In addition, if insurance amount cannot be estimated with actual trade amount or accomplished work-oriented actual construction amount, by reason of the fact that there is no similar preceding construction as the said facility construction, insurance fees cannot but be calculated only with insurance company's rates, and a contractor has to bear the difference of insurance fees. On the other hand, the paragraph 3 of article 8 of the guidance prescribes that a contractor cannot refuse to take out insurance by reason of the difference of insurance fees and prevents a contractor from demanding exact calculation of the difference, thus making a contractor being at a disadvantage. And the article 9 of the guidance (insurance clauses) is problematic when the would-be insured construction is excluded from being covered by insurance, like the said facility construction.

#### **4.2.3 Problem of General Construction Contract Condition**

The article 10 (damage insurance) of General Construction Contract Condition clearly prescribes construction insurance. But the paragraph 2 and 7 of article 10 of the condition and the article 13 (use of insurance money) of Enforcement Guidance of Construction Damage Insurance do not clearly state the criterion of using insurance money at the time of occurring an insured accident. In addition, the paragraph 5 of article 10 of General Construction Contract Condition states that in case of contract being cancelled or terminated and of a new contractor being chosen, the right and duty of former contractor must be succeeded to

a new contractor. This provision seems to be interpreted from the aspect of so-called assignment of insurance contract. Thus, the General Construction Contract Condition must be appropriately supplemented in the light of insurance business practices.

#### **4.2.4 Problem of Specific Construction Contract Condition**

The article 5 (construction damage insurance) of Specific Construction Contract Condition prescribes construction insurance as the content of written contract for construction which is concluded between a public official of the Public Procurement Service who is in charge of contract and a contractor. But the paragraph of article 5 prescribes the provision of applying British method insurance clauses to downtown construction, except special case, and German insurance clauses to other construction. Because this provision does not take the characteristics of individual construction into account and indiscriminately applies German insurance clauses to all the construction sites except downtown areas, problems seem to be taken place when a contractor takes out construction insurance.

### **5. CONCLUSION**

This study was carried out to examine and present the problem of domestic maritime facility (Gas Plant) construction insurance regulations. For this, a maritime facility construction case (Gas Plant), which was carried out in Korea for the first time as a maritime facility construction, was analyzed and then its problems were drawn out. In addition, construction insurance regulation-related national contract laws & ordinances were examined and then its problems were drawn out too. Study findings are as follows:

First, because the ordering party does not consider the fact that 00 facility construction is the first maritime facility (Gas Plant) construction in Korea, the contractor has to bear additional insurance fees. Second, the ordering party designates 'German method clauses' as insurance clauses for the said facility construction and then makes the contractor to take out construction insurance at the time of contract. Third, the Enforcement Ordinance of National Contract Law does not clearly state the procedure of and whether or not taking out insurance as one of construction insurance-related national contract laws and ordinances. Fourth, the

General Construction Contract Condition does not clearly state about the criterion of use procedure of insurance money at the time of occurring an insured accident.

## **ACKNOWLEDGEMENT**

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## **REFERENCES**

- [1] Song D. H., A Study on the Activation Strategy of Construction Insurance regulations, Myongji University, 2001.
- [2] Kang S. G., A Study on the Expansive Application Strategy of Construction Insurance regulations, Myongji University, 2001..
- [3] Park B. C., An Improvement Strategy of Domestic Construction Insurance regulations, Chung-Ang University, 1998
- [4] A Practical Guidance of Construction Insurance, Korea Insurance Development Institute, 1999. 4.
- [5] The United Kingdom, General Condition of Government Contracts for Building and Civil Engineering Work, 1997.
- [6] Robert W. Dorsey, "Project Delivery Systems for Building Construction", pp. 209 ~ 221, 1996.