Reflection on information management of power grid construction project based on typical accident analysis of power grid construction

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Abstract: Based on the review and reflection of typical cases, this paper analyzes the poor information transmission in the event of accident. Besides, it puts forward the effective measures to solve the bottleneck of information interaction between the current construction management unit and the construction project department, combining the actual situation of the power grid information.

1. Typical case review

1.1 Jiangxi Fengcheng power plant accident

In November 24, 2016, the three phase expansion project of the Fengcheng power plant in Jiangxi caused a particularly serious collapse of the cooling tower construction platform, resulting in 73 deaths.

The direct cause of the accident: under the condition of insufficient concrete strength of the fiftieth section wall of the 7 cooling tower, the construction unit illegally dismantled the fiftieth section template, what caused the loss of the template support in the fiftieth section wall concrete. As a result, it was fragile to bear the upper load, and began to collapse from the weakest part of the bottom, resulting in the concrete and mold frame system of the wall of fiftieth joints and above. Falling down continuously. The impact of falling objects and the Pingqiao attachment cables connected to the inner wall of the cylinder cause Pingqiao to collapse as a whole.

The compressive strength of fiftieth section wall concrete is 0.89-2.35MPa, and the compressive strength of fifty-first section wall concrete is less than 0.29MPa, and there is no compressive strength for 52 section wall concrete. In accordance with the mandatory provisions of the national standard, when the fiftieth section of the template is removed, the strength of the fifty-first cylinder wall concrete should reach more than 6MPa.

1.2 Qindao5.14 accident

In May 14, 2017, the collapse of the tower in the Jiaozhou made the 110 kV transmission project broken down, which was built by the Qingdao Hengyuan Power Transmission Engineering Co., Ltd., a collective enterprise of Qingdao company, which was built by Qingdao Hengyuan Power

Transmission Engineering Co., Ltd., resulted in the death of 4 people and the direct economic loss of 4 million 130 thousand.

The direct cause of the accident: the builders misused the nuts that did not match the anchor bolts during assembled iron tower, which resulted in the insufficient fastening force of the tower and the anchor bolts, and the tower foundation could not provide enough restraint during the tight line process, so that collapse accident occurred.

2. Reflection on the cause of the accident

2.1 Jiangxi Fengcheng power plant accident

There are many reasons for the accident in Fengcheng power plant, such as unsound management , Confusion in construction organization and compressing the construction period, etc. However, the most important and direct reason is the violation of the rules under the condition of insufficient concrete strength. In fact, some people have found the problems before the accident happened. In the afternoon of November 23, 2016, the tester of the project department of the construction unit was inspecting the strength of the block before the fiftieth section of the cooling tower of No. 7 cooling tower was dismantled. It was found that the fiftieth and 51 section wall concrete with the same condition was not completely solidified, so the tester removed the test blocks of the 2 chimneys to the concrete mixing station for strength. After testing, the strength of the chimney test block was less than 1MPa. The telephones were reported to the Minister of Engineering Song Yongzhuang by the tester. When the accident occurred, Song Yongzhuang did not take effective measures according to the regulations.

From the above, we can see that the key problems of the accident were reported to the Minister of engineering, but it was not clear that why the minister did not take effective measures. If there was a construction management group, the heavy defects found in the field could be sent to the group for the first time. Then people who know this major hidden danger will be more ,not only Song Yongzhuang. Then we have reason to believe that the situation of illegal dismantling may be stopped. Therefore, this project has found problems in the process of construction, how to carry out the problem, to ensure that the problem of information transmission mechanism is very important as soon as possible. However, the fact is that the construction unit, the supervision unit and even the owner project department do not want to open the existing problems in the field, mainly for fear of being punished by the first level unit, but the information lost caused by this kind of situation may lead to the accident.

2.2 Qingdao 5.14 accident

There are many problems, one of these is the construction unit "by the package tube", the project subcontracting out, the construction unit will feel that there no longer problems, as for the construction process of safety, quality and other problems are controlled by the subcontractors. This phenomenon of "package management" is still common in engineering construction, and of course, it is being gradually improved.Under the circumstances of "package management", there is inevitable management out of control and "information island". For the regulatory unit and the owner project department, the subcontractors are unfamiliar because of the relatively strong liquidity, and even the construction units do not know enough about the subcontractors. In this case, if there is no exchange of information, there will not be exchange of the problems. The construction of the project is in an isolated island of information, which is difficult to solve the problem in time. The implementation of the requirements and regulations of the superior departments is difficult to be implemented in time.

3. Information status of power grid construction

The information transmission of the Ministry of construction and owner's project department is mainly based on the office network, which assists WeChat mobile phone. WeChat can make dialogues and send files that are not more than 10M. There is no fixed storage area after the file is sent. It is not convenient to find the file. In addition, WeChat does not support off-line storage. By contrast, TIM,

QQ and other software are more powerful. First, the size of the file is not restricted, and there is a separate file storage area, and then the information of the dialogues can be querying anytime and anywhere. In terms of office equipment, it is generally only equipped with office desktop computers under the security requirements of network secrecy.

Because the construction environment is limited, the information transmission of the construction unit is mainly based on the information network, and the office equipment is mainly based on notebook computers.

Through the above analysis, we can see that the immediate communication between the construction department, the owner project department and the construction unit is mainly based on the mobile WeChat, which is far from satisfying the normal work demand. The work requirements of the construction department and the owner project department are difficult to convey to the construction units in the first time, and the construction information of the construction units is also difficult to be first. Time feedback to the Ministry of construction and owner project department, there is obvious bottleneck of information interaction between management and the scene.

4. summary

(1)The WeChat platform as the main software for file transmission should be of limited use, because the location of WeChat function is limited in information transmission. Under the premise of information security, TIM, QQ and other software can be more used to conduct information transmission, so as to avoid the interference of the software itself.

(2)It is suggested to establish a unified information feedback platform for construction defects among the participating units, and to participate in the key personnel of the unit, the owner project department, the design unit, the supervision project department, the construction project department, the subcontracting team and other key personnel. The problems found in the field are reported at the same time, then reported to the platform, so that more people can be found. For the first time, we should grasp the major defects in the construction site and timely release information such as downtime and rectification so as to effectively avoid accidents.

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