Plan System and Emergency Disposal of Videoconference System

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Abstract. The conception and compose of emergency plan system is introduced and the emergency disposal principle, measure and procedure of videoconference system is detailed stated. It will benefit the construction of emergency response plan system.

1. Introduction

The emergency is the burst events that may or may have caused harm to society, economy, politics and it needs to be handled by emergency measure. Emergency management is a dynamic course that includes the prevention, the preparation, the response and the restoration to prevents, in anticipation the matter, afterwards of emergency. The emergency plan is the core of the emergency management preparation work and it also is the important guarantee to develop the emergency work effectively [1-4]. The electric power company is an important backbone enterprise and the safety production and stable management is the key to defend national security, social stability and interests of the people. The research of the electric power emergency plan system is the active demand that state grid to deal with all kinds of emergencies, and it also is certain claim of emergence development. Videoconference system is an important communication platform to ensure the production and operation of the company [5-7]. The conception and compose of emergency plan system is introduced and the emergency disposal principle, measure and procedure of videoconference system is detailed stated. It will benefit the construction of emergency response plan system.
2. Emergency management

![Emergency management process diagram]

Emergency management is a procedure which includes four stages: the prevention, the preparation, the response and the restoration. Stage 1: The prevention. In order to prevent, control and eliminate the long-term harm to human life, property, and environment and so on, the purpose is to reduce the occurrence of unexpected events. Stage 2: The preparation. The actions taken before the incident occurred, the purpose is to improve the emergency response capability and improve response. Stage 3: The response. It is the action to be taken in the event of an emergency. The purpose is to minimize the loss of life, property and environment, and is conducive to disaster recovery. Stage 4: The restoration. To return the production or life to normal state or further improvement.

2.1. Emergency plan systems
To respond to possible accidents, an emergency plan is intended to respond quickly to an emergency. To specific equipment, facilities, places or the environment, based on the risk assessment, the incident is assessed in the form of the development process, damage range and the damage conditions of the area. In order to prevent and reduce the accidents of the person, property and environment loss, the scientific and effective plans and arrangements is advance planted to be consider emergency relief agencies and personnel after the occurrence of unexpected events. Emergency rescue equipment, facilities, and environmental conditions, steps and program of action, control development method and procedure and so on.

Emergency plan system is the response foundation of enterprises to various emergencies, it makes the emergency preparedness and emergency management no longer have basis, unsystematic. It is in favor of to make emergency response in a timely manner, and to reduce the consequences of emergencies and the civil and criminal liability; also it is in favor of improving the social awareness of risk prevention.

2.2. The constitution of emergency plan system
The emergency plan should form a system, aiming at all kinds of possible accidents and all hazards, and formulate special emergency plan and emergency disposal plan. Also, it should clear the responsibility of relevant departments and relevant personnel who are relate to the beforehand, in the matter, afterwards of each process. Emergency plan system is divided into three categories.
1) Comprehensive emergency plan
   It elaborates the basic requirements and procedures such as Emergency policy, emergency organization structure and related emergency duties, emergency actions, measures and safeguards and it is a comprehensive document to deal with various types of accidents.

2) Special emergency plan
   The plan or scheme which is made According to the specific categories of accidents (such as coal mine gas explosion accidents, dangerous chemicals leakage), hazard and emergency protection is a part of a comprehensive emergency plan. It should be in accordance with the procedures and requirements of comprehensive emergency plan and to be an attachment of comprehensive emergency plan. The special emergency plan should clear the rescue procedures and specific emergency rescue measures.

3) Site disposal plan
   According to the specific equipment, premises or facilities, emergency disposal measures are formulated. Site disposal plan should be specific, simple and has strong pertinence. The scene disposal scheme should be compiled one by one based on risk assessment and risk control measures. The accident related personnel should master it, and through the emergency drills, they can run up to the rapid response and right disposal.

3. Emergency response of videoconference system

3.1. Event features
   The video conference system is an event that is caused by MCU, conference terminal, peripheral equipment, power supply and transmission channel, which may lead to the interruption of the meeting or the serious impact.

3.2. Emergency disposal
   1) Emergency treatment principle
      In accordance with the principle of "first production, then the other; First superior, then the inferior; first backbone line, then branch line; first reopened, after repair", it must seriously implement the disposal process, strictly perform their duties, and quickly transfer the necessary communication resources, to prevent the occurrence of the emergency command communication and avoid to expand the scope of accident. At the same time, it must prevent jiggering new incidents, to ensure the normal operation of electric power communication system.

      2) Advanced disposal
         a) It must adopt appropriate measures to prevent the situation further expanded, and timely report according to the prejudgment. b) When generating circuit of electric power communication business interruption, it should as soon as possible detour route, recover the important production service circuit and issued a temporary operation. c) On-site emergency disposal, it should ensure dispatching business first, then restore the safe production business, finally restore information management business.

      3) Emergency disposal
         a) When the emergency power communication system may affect production circuits, local communication scheduling department should immediately inform the emergency information to the relevant departments, and organize emergency work according to the disposal site. b) The leader of emergency-rescue team and relevant personnel receiving an emergency command should arrive at the scene immediately, and Carry on the emergency work according to the emergency plan.
3.3. Emergency measures

1) MCU fault

**Table 1. MCU fault**

| Fault phenomenon                                                                 | Fault reason                        |
|--------------------------------------------------------------------------------|-------------------------------------|
| a). Some or all of the terminals are disconnected.                             | a). Main board failure              |
| b). Some or all of the venues receive image anomalies.                         | b). Connection board failure        |
| c). Partial or full reception of audio anomalies.                              | c). Audio board fault               |
| d). There is a single board alarm on the MCU                                   | d). System crash                    |
| e). At the conference control version, some or all of terminals are disconnected. |                                     |

Fault treatment as follows:

a). There are two MCUs supplying in redundant heat standby. When a fault occurs, the system will automatically switch to another MCU, after the meeting, the fault MCU must be repaired immediately, and the system hot standby mode must be restored.

b). Switch conference audio to telephone conference system.

c). Fault board must be soft reset.

d). The board to be replaced or hot swapped.

e). Views the transmission channel to avoid some terminals are disconnected due to the transmission channel.

2) Conference terminal failure

**Table 2. Conference terminal failure**

| Fault phenomenon                                                                 | Fault reason                        |
|--------------------------------------------------------------------------------|-------------------------------------|
| a). The image or audio anomalies which to be send from main venue to single venue. | a). Terminal failure                |
| b). The image or audio anomalies which to be send from main venue to many venues. | b). Terminal software configuration error |

Fault treatment as follows:

a). The image or audio anomalies which to be send from main venue to single venue, but the others are not the same state. It is judged that the reason is the single venue terminal failure

b). The image or audio anomalies which to be send from main venue to all venues, after the exclusion of non MCU failure, the fault may be caused by the main venue terminal failure.

c). The audio and video loopback operation is carried out on the terminal. If the loopback audio and video loopback is not received, the reason can be judged to be the terminal failure, or the network or the transmission channel fault.

d). Check the terminal parameter configuration

e). Restart terminal

3) Peripheral fault

**Table 3. Peripheral fault**

| Fault phenomenon                                                                 | Fault reason                        |
|--------------------------------------------------------------------------------|-------------------------------------|
| a). The image or audio anomalies which to be send from main venue to single venue. | a). camera fault.                   |
| b). The output image or audio from single venue to the main venue anomalies.   | b). microphone fault.               |
|                                                                              | c). audio matrix fault.             |
|                                                                              | d). video matrix fault.             |
|                                                                              | e). display device failure          |
|                                                                              | f). audio and video input, output interface and related cable failure |
Fault treatment as follows:
   a). Check the microphone, the audio matrix and other devices are functioning properly
   b). Check that the audio input, output interface and the relevant cable is burned or loose, if necessary, replace the audio input and output ports and cables.
   c). Check the video matrix, display equipment and other equipment’s are running normally.
   d). Check whether the camera is power, the image input, output interface and the relevant cable of the image is burned or loose, if necessary, replace the image input and output ports and cables.

4) Transmission channel fault

| Fault phenomenon                                      | Fault reason                        |
|------------------------------------------------------|-------------------------------------|
| a). The terminal is dropped from the conference or cannot be connected to the MCU | a). Network or transmission channel failure. |
| b). Venue image is pause or mosaic is serious, audio is not coherent         | b). Transmission cable connection plug loose |

Fault treatment as follows:
   a). Check whether the transmission cable connector is loose
   b). If the network or transmission channels fail, the situation should be reported to work group.

4. Emergency disposal

After the on-site emergency disposal, on-site repair personnel shall confirm the business circuit of electric power communication system has been restored to normal operating state, the stability of the system after 30 minutes, it can be regarded as the hidden fault has been eliminated, we can apply to the communication scheduling over on-site emergency disposal procedures and approval to be evacuated.

Communication scheduling department receive the end of the site emergency application and confirm the business circuit return to normal, issue the evacuation order after the emergency group agreed.

5. Event reporting

The event report is divided into emergency report and detailed report. The emergency report refers to the emergency oral report briefly; a detailed report refers to the whole process submitted in written form after the emergency treatment. The group should report to higher headquarters about the emergency response situation, equipment damage, people and so on every 30 minutes, if there are significant changes ,they must reported immediately . The emergency group assesses the business circuitous and troubleshooting time and accurately grasps the on-site disposal according to the scene disposal. Then, report to their superiors department every 30 minutes, if there are significant changes, they must reported immediately.

6. Post evaluation

At the end of the emergency, the emergency group should organize the analysis and evaluation: 1) based on emergency disposal, a detailed on-site disposal report should finished. 2) They should analysis the emergency disposal and summarize the experience, then issue accident measures. 3) They also should ask for the involving units in a timely to improve related emergency measures about the emergency disposal site, emergency rescue and so on.

7. Conclusion

The power supply enterprise is an important backbone enterprise beneficial to the people's livelihood. The safe production and stable operation of the electric power is to safeguard national security, social stability, also is the key to protect the interests of the people. Therefore, in the frequent emergencies
today, strengthen the emergency plan, establish and improve the emergency response mechanism is particularly important.

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