Study of magnetic resonance coronary angiography based on functional magnetic resonance imaging

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Abstract. China's economic development depends on the stable operation of power system. Whether in industry or agriculture, electric power resources have covered all aspects of people's production and life. In particular, China's economy is developing at a high speed, and the demand for power resources is increasing day by day. Based on this actual demand, this paper takes 35kV Transmission Line as an example to analyze its safe operation and maintenance in detail, aiming to provide reference scheme for China's power industry and promote the healthy and stable operation of China's transmission line.

Keywords: 35KV transmission line, Safe operation, Maintenance and overhaul analysis.

1. Introduction
As a common high-voltage transmission line in China, 35KV transmission line will encounter many problems in daily maintenance because of its long span, which will have a certain negative impact on its safe operation. The national economy is easily affected by the stop of power supply, resulting in huge economic losses. Therefore, it is necessary to take necessary measures to comprehensively analyze the 35KV transmission line and fully study its operation and maintenance. So as to give effective solutions and realize the healthy and long-term development of China's power supply system.

2. Main causes of 35kV Transmission Line Fault

2.1. There are problems in the line itself
Transmission line system is complicated, and there are many cross paths in all kinds of lines. If the construction link is not strictly grasped, it is easy to cause potential safety hazards before the transmission line is put into use. Moreover, some transmission lines have not strictly implemented the supervision related work by scientific methods, which leads to the failure of the project to meet the standard requirements, the formal application of transmission lines cannot ensure the safety, and it is easy to have poor load capacity of utility poles, resulting in collapse. It has a negative impact on transmission lines, and at the same time, it will also cause power outages at regional locations, and even lead to serious safety accidents, threatening people's lives and property safety.
2.2. Natural disaster
Because the main working environment of the transmission line is outdoor, it is extremely vulnerable to severe impact in bad weather, for example, it is extremely vulnerable to electric shock in thunderstorm weather, resulting in power supply interruption. In rainy summer, the moisture content of air is too high, which will affect the normal operation of transmission lines due to humidity. These problems seriously hinder the normal operation of transmission lines, and will greatly reduce the transmission efficiency and quality. At the same time, we should also consider whether the transmission line has good grounding effect. If there is no elevated railway around, necessary measures should be taken to avoid grounding of the line. Once the line is grounded, it will not only interrupt the power supply, but also affect the normal operation of society, and people passing by will cause casualties. Every year, the direct economic losses caused by natural disasters in China exceed 300 billion yuan, and about 300 million people are affected by disasters every year.

2.3. Line heating
As a common fault of transmission lines, the heating problem is the main reason why the lines stop running. When a large amount of power resources are transmitted by transmission lines, heat energy which cannot be borne by the transmission lines will occur at local locations [1]. The reason is that the line is too long, resulting in large resistance, which makes the voltage and current at both ends of the equipment exceed the safe operation range. If there is a short circuit problem in the line, it will also cause the local line temperature to rise. To treat line heating seriously, it will not only cause local line damage, but also cause unpredictable problems for the whole line in severe cases. Therefore, attention should be paid to line heating in safe operation. As shown in Figure 1, the main control box is burned due to short circuit.

3. Safe operation measures of 35kV Transmission Line
In the construction process, the construction quality should be strictly managed. Because the transmission lines are arranged in a horizontal way, if the wires can't keep the same sag in the same gear, the wires can't be guaranteed to have the same swing amplitude in windy weather, which will easily lead to the collision of wires and short circuit between phases. Therefore, extra attention should be paid to wire tension, and three-phase wires can have the same Zhang Chi within the standard by using appropriate methods. If there is a problem of different line slack, it should be dealt with immediately. In windy weather, the branches of surrounding trees are scraped off, and once they fall and overlap between
two lines, or metal products with connection effect are thrown at the wire position artificially, the wires will be short-circuited between phases, and in severe cases, the wires will be broken, so it is necessary to ensure that the crossing lines have a standard safe distance. However, due to the long-term influence of rich moisture or harmful gases around the wires, wire erosion will gradually occur, and steel wires and lightning protection wires will often be rusted, which will affect the normal operation. Therefore, in the daily inspection, once there are signs of corrosion in the wire, it is necessary to replace the wire. If porcelain insulator is affected by harmful air components, it will cause additional power loss. The reason is that the porcelain will continuously accumulate air impurities in use, and the generated pollution layer will fully absorb moisture under wet and rainy conditions, so that it will produce high conductivity, which will not only increase the overall power loss of the line, but also easily cause flashover safety accidents [2]. If the equipment has slight burning sensation, it is necessary to judge whether the local temperature rises due to excessive voltage at both ends. Adopt appropriate methods to reduce the problem of excessive voltage of equipment. If the internal resistance is too large due to the long service time of the equipment, it is necessary to replace the equipment in time to avoid serious safety accidents.

4. Maintenance and repair Countermeasures of 35kV Transmission Line

4.1. Strictly implement the inspection work

In order to define the line maintenance goal, it is necessary to use the team patrol method, and scientifically divide the patrol team into several teams with a minimum number of not less than three. Each team only needs to patrol the responsible lines, and implement the high-quality patrol method with special personnel. In view of the adverse effect of losing sensitivity to common problems caused by the team's patrol of lines, it is necessary to take charge of line exchange for the team every quarter to ensure that the team can maintain strong sensitivity to line patrol, and to divide responsibilities for handover work. According to the national standard, record the line patrol situation to ensure that the patrol content is true and comprehensive. Not only the current operation of the equipment should be fully recorded, but also the current situation of the protection zone and the last record changes should be taken as the content record. The potential safety hazards in the future operation of the line should also be recorded, and the problems should be reported at any time. For example, there are illegal buildings or tall trees around the line. When the facilities are stolen, it is necessary to make a record in cooperation with the relevant units at the same time of reporting. The operation detection of insulators and other components shall be recorded as the necessary content.

4.2. Key points of inspection

Every spring and winter, anti-theft and fire prevention should be taken as the key content of patrol. While improving the current patrol intensity, the patrol cycle should be reduced, the patrol density should be increased, and all contents should be strictly recorded. If there is strong wind above Grade 6 in the jurisdiction, the wind direction and magnitude should be detected and recorded. In case of complicated weather such as heavy fog or condensation, it is necessary to select the appropriate time and adopt the field observation method to record the line discharge [3]. If there is a construction site within the jurisdiction, or if it passes through the urban area, it is necessary to strengthen the publicity of the line protection to avoid the interference of the line by human factors. From July to September every year, the focus of line inspection should be shifted to the fact that there are intersections on the line. If the line is bumped by mistake, please see if it is within the controllable range. Do a good job in pruning the trees around the line protection area to avoid interference to the wire due to too long branches. The second chapter also mentions the specific rules and regulations to adjust the distance between trees and lines to ensure the safe operation of lines. If there is too much rain in rainy season, it is necessary to increase the inspection frequency of flood control embankment section and make good records. It is necessary to take appropriate measures to prevent collapse due to rain erosion. If some areas have collapsed, timely repair work should be done.
4.3. Patrol in place
In order to ensure that its work can be effectively implemented during the line inspection, it is necessary to formulate reasonable standards to control the line inspection. When the patrol personnel arrive, they need to check the pole position, take the tower as the center, walk around it, fully check the prosperity of various equipment and appliances in the responsible section, and then move on to the next tower. If it is a special section, manual inspection can not be effective, it is necessary to fully observe with the help of telescope. In case of frequent accidents, it is necessary to strictly implement the inspection work according to relevant regulations to ensure that the line is fully detected and there is no missing inspection position. According to the situation, the on-site pole climbing method is adopted for further inspection of the line to strengthen the inspection quality.

4.4. Description of line defects
Cable defects should be described in standardized languages such as "right on load side" or "left on power side", and the cable model or ground wire model should be clearly marked. If the line is stolen, the current situation and specific model of the pull rod should be recorded in detail. In case of corrosion of the stay wire, measure the actual surface area of corrosion, estimate the cross-sectional area and consider whether to replace the stay wire according to the current circuit operation. When the angle steel of the iron tower is stolen, the tower type and the number and specific size of the stolen angle steel are fixed in the system. If you can't find out in the field, you need to do a good job of sketching. After returning to the station, you should immediately ask others or inquire about information, fill in the vacant position completely, and if the bolt is stolen, you should clearly describe the orientation and record the bolt type. If the hoop is stolen, record the current running status of the left rod and the right rod, and the specific model and required materials of the hoop to be repaired. Wire or ground wire is affected by external force, causing damage or even broken strand, so it is necessary to record the current situation of damage, record the span, the linear distance between the damaged position and the tower, etc., and select the appropriate treatment method according to the specific standard of line operation. When making statistics on line crossing, it is necessary to specify the span, crossing distance and angle, etc. In case of new houses and other abnormal situations in the line protection area, it is necessary to consider whether it is in line with the line operation and discuss with the construction personnel in detail [4]. When it is determined that the safe distance for line operation cannot be met, the current construction work of the house should be stopped, and serious safety publicity should be carried out to avoid problems in future operation. If soil is needed around the tower or rock blasting is needed, the details of the tower and the depth of soil borrowing should be clearly defined. If you find bird nests built on towers, you should indicate the number of bird nests on towers and record the specific locations. If the insulator is damaged or the line pin is missing, the phase and the position of the power supply side should be recorded in detail. In case of emergency problems on the line, immediately report to the higher authorities, and take appropriate measures to make preliminary treatment to avoid further expansion of the problems.

5. Summary
Routine maintenance and regular overhaul are important means if 35KV transmission lines want to run stably for a long time. This paper provides countermeasures for maintenance and repair of 35KV transmission lines, which has reached the preliminary use level. However, in practical application, it is still necessary to focus on the current operation of transmission lines and select appropriate methods to optimize the problems. If there is a serious fault problem, it is necessary to discuss the problem solution with the technical personnel, handle the problem carefully, and record the process and result as a reference for future similar problems.
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