

Research on the Construction of Laboratory Safety Management in Universities

Chengcheng Long, Hang Liu

Southwest Petroleum University, Chengdu 610000, Sichuan, China.

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Abstract : University laboratory is an important place for talent training and scientific research innovation, and laboratory safety is the basic work to ensure talent training and scientific research innovation. In recent years, laboratory safety problems still occur, and laboratory safety is the top priority of safety management in universities. By analyzing the contents of the construction of laboratory safety management in universities, this paper expounds the problems and thoughts existing in laboratory safety management, and puts forward improvement methods from three aspects: safety management responsibility system, safety management responsibility system and reward and punishment supervision mechanism, in order to improve the effectiveness of laboratory safety management.

Keywords : Laboratory Safety; Safety Management Construction; Safety System

1. Introduction

On December 31, 2021, the Ministry of Education issued the Circular of the General Office of the Ministry of Education on carrying out special actions to strengthen laboratory safety in universities. It is mentioned that laboratory safety in universities is an important part of campus security. It is not only the focus of the safety work of the education system, but also an insurmountable red line.

The laboratory is an important base for experimental teaching and scientific research in universities, and it is one of the main places for personnel training and practice. The safe and orderly management of the laboratory is the basic premise and fundamental guarantee for the normal work of teaching and scientific research. So it is of great practical significance to build a scientific and reasonable laboratory safety management system and enhance the awareness of laboratory safety culture to maintain the harmony and stability of the campus.

2. Connotation of laboratory safety management

Safety management is an important part of production and life, and it is a comprehensive state management and control of people, objects and environment in management.

The safety management of laboratories in universities is a safety management work specific to laboratories in universities. It is a long-term and systematic management work, which requires schools, departments, laboratories and competent institutions at the school level to perform their respective duties, coordinate and cooperate, formulate a scientific and reasonable management model, and make unremitting efforts.

In recent years, the rapid development of laboratory construction in universities has made great contributions to discipline construction and personnel training in universities. However, with the safety problems brought about by the opening of laboratories, it is worthwhile for laboratory managers to constantly innovate and improve the mechanism of laboratory safety management to ensure the orderly development of experimental teaching and scientific research in universities.

3. Main problems existing in laboratory safety management

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3.1 Lack of a sound and complete laboratory safety management system

The laboratory safety management system in universities is an important part of the campus safety system, which needs to follow the objective law of laboratory safety work in universities. It is a necessary means to comprehensively optimize the design of various links related to laboratory safety in talent training, teaching and scientific research activities in colleges and universities, and to form a laboratory safety management system with relatively complete structure and function.

The system needs to fully cover the main construction contents such as organizational structure, mechanism guarantee, publicity and education, safety inspection, emergency plan, etc., and the system also needs to determine the work priorities and requirements of different levels at different levels. Different levels of safety management personnel contact, interact and promote each other to form a whole, so as to ensure the safe and efficient operation of the laboratory.

3.2 The safety consciousness of teachers and students is relatively weak

The school has not formed the consciousness of “safety for all”. Teachers and students generally think that the safety of the laboratory is far away from themselves, that they will not encounter unmanageable safety accidents, and that they are not clear how to deal with them after the occurrence of safety accidents. These are the reasons why safety awareness is weak and there is no systematic construction of safety culture system.

Laboratory teachers and students are the key factors of laboratory safety work, and there are widespread phenomena such as fluke psychology, lack of laboratory safety knowledge, lack of risk and safety risk assessment, and non-standard operation. It is necessary to strengthen cultural guidance, strengthen service, strengthen laboratory safety management, continuously carry out laboratory safety lectures and training, strengthen content innovation, make the content closer to and attract teachers and students, and form a safety culture atmosphere in which teachers and students “actively participate, willing to participate and innovate constantly” to demonstrate the effectiveness of the activities. Through the guidance of the core values of safety culture, teachers and students can form the habit of self-restraint and strong self-control ability.

3.3 Regular safety checks are a mere formality

The purpose of laboratory safety inspection is to find out the hidden dangers, harmful and dangerous factors and defects that may exist in the process of the experiment through safety inspection, and find the weak links and safety hidden dangers in time.

In the practice of laboratory safety inspection in universities, many safety inspections are just a mere formality, and the contents of the inspection can not highlight the key points.

Coupled with the lack of effective reward and punishment mechanism in schools, the enthusiasm of safety inspection is not high and the inspection is too formal.

4. Measures for improving the construction of laboratory safety management in universities

4.1 Establish a multi-level and multi-level laboratory safety responsibility system

Universities should implement the four-level laboratory safety responsibility system of schools, institutes and experimental centers (scientific research teams and research institutes). In accordance with the guiding principles of “the same responsibility of the party and government, one post and two responsibilities, joint management, dereliction of duty”, “management industry must take care of safety, management business must take care of safety”, “who is in charge, who is responsible, who is responsible, who is responsible” and other guiding principles, clear management responsibility layer by layer.

If the laboratory safety accident is caused by the failure of duty or improper management, the person responsible for the accident and related personnel will be investigated for the corresponding responsibility.

Through the four-level safety responsibility system, clarify the respective division of responsibilities of safety management personnel, enhance the awareness of safety responsibility of personnel at all levels, and promote the efficient management of laboratory safety.

In addition to safety management responsibility, the classification and classification of laboratory safety is also an integral part of the comprehensive safety responsibility system.

Laboratory classification and classification management is the key operation of laboratory safety management, and it is also an important basic work for laboratory management to gradually move towards fine and scientific management.

4.2 Construct the safety culture system of laboratory

4.2.1 Set up a laboratory safety course

College education lies in educating people. As a part of safety education, laboratory safety should play an important role in campus safety.

Laboratory safety knowledge includes not only the technical operation needed in the experiment, but also the risk analysis of the substances to be exposed, experimental equipment and the surrounding environment, safety of electrical equipment, management of flammable and explosive materials, fire safety, general first aid and other knowledge.

Only by understanding the dangers that may be caused by the upcoming experiment and mastering the correct operation method, can we ensure that teachers and students can operate the experiment safely and independently.

In the past laboratory safety accidents in universities, many safety tragedies occurred in the laboratory were caused by the experimenter's lack of safety knowledge.

Only when all the personnel involved in the experiment have fully mastered the safety knowledge and updated and stored it timely, can the safety of the experiment be effectively guaranteed.

4.2.2 Construction of laboratory safety culture education platform

Colleges and universities should establish a special laboratory safety culture education platform, which will carry out the construction of laboratory safety education in universities. These include: regularly carry out online and offline laboratory safety culture education activities, such as laboratory safety access examination laboratory safety knowledge competition, laboratory safety laws and regulations learning, laboratory safety training and so on. Activities such as safety training and drills are regularly released and carried out on the platform to enable teachers and students to acquire safety experience and prevention skills. Through the construction of safety education platform, we can attract more social forces, adopt school-enterprise co-construction, industry-education integration and other ways, the combination of safety and practice, so that teachers and students can more deeply understand the importance of laboratory safety. The main purpose of the construction of laboratory safety culture education platform is to further strengthen teachers, students and staff's mastery and application of laboratory safety knowledge and skills through a series of publicity, learning and mutual learning, and to enhance teachers' and students' safety consciousness. improve the belief of safety responsibility and establish a "people-oriented" laboratory safety values.

4.3 Implement the system of rewards and punishments and supervision and feedback

In the practice of laboratory management, most of the workload is used for regular safety inspection and hidden trouble detection, but high-frequency safety inspection and complicated inspection items have made it difficult to carry out the actual organizational work and seriously consume manpower and energy. In this context, it is particularly important to simplify the number of safety inspections and projects, and to implement the mechanism of safety rewards and punishments and supervision and feedback. It is an important part of laboratory safety management in universities to make every inspection effective and to bring experimental teaching and scientific research into safety inspection every day. Through the safety education platform to improve the laboratory safety learning reward mechanism, safety inspection punishment, we can improve the standards of the system, punishment and reward can not only enhance the enthusiasm of teachers and students for safety learning, but also improve the efficiency of safety inspection; Daily safety supervision feedback mechanism, through "random shooting", report safety risks at any time, so that "everyone is the main body of safety and everyone participates in safety management".

5. Conclusion

Laboratories in universities are the basis and guarantee of teaching and scientific research activities. A wide range of areas is involved in safety work, which requires a high sense of responsibility. Laboratory safety is a work that is "always on the road". Colleges and universities need to strengthen the awareness of the red line of laboratory safety, stick to the bottom line thinking, overcome paralysis and fluke mentality, maintain perseverance in work, implement safety management responsibilities at various levels, and make concerted efforts to rectify hidden troubles. In addition, construction and innovation of laboratory safety system in an all-round and systematic way should be promoted, and the ability of laboratory safety guarantee should be improved in order to put an end to the occurrence of laboratory safety accidents.

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