

Discussion On Safety Management Of Urban Gas Non-Resident Users

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Abstract

with the rapid development of urbanization, the number of non-residential users of gas consumption continues to increase, and the corresponding security wind direction and problems are increasing. By combing the gas safety management process of non-residential users in large-scale urban gas enterprises, embedding the whole life cycle management process, improving the quality of gas safety management of non-residential users, eliminating some potential safety hazards and reducing the accident development rate, at the same time for other enterprises in the same industry to provide reference.

Keywords

Urban gas; non-residential users; safety management.

1. Introduction

Since the beginning of the 21st century, with the rapid development of urbanization across the country, the urban gas industry, as an important component of urban infrastructure, has also experienced significant expansion. Since the Ministry of Construction included urban gas operations within the scope of municipal public utilities in 2004, the urban gas industry has entered a golden period of development. As a fundamental industry for ensuring people's livelihood, urban gas companies provide essential goods for the daily lives and production of urban residents, making safety management a top priority for the development of these enterprises.

With the entry of capital and the continuous expansion of the city scale, many violations in the early stage of construction and the lagging safety management of customers in different industries have become increasingly apparent. In particular, the security risk management of some non-resident users is not in place, resulting in frequent security accidents and increasingly prominent security management problems [1]. For example, after the "June 13" major gas explosion in Shiyan, Hubei Province, several large gas accidents and typical accidents occurred in other parts of the country.

By sorting out the safety management process of non-resident users of a town gas enterprise and introducing the whole life cycle safety management into the management process of non-resident users [2,3], it can not only further improve the safety management quality of non-resident users of the enterprise, but also provide beneficial reference for enterprises in the same industry.

2. Process review

Through the investigation of a gas enterprise in a town, the overall situation of the safety management of non-resident users in the enterprise is sorted out, and the whole life cycle theory is integrated into each link of the safety management. Based on the original files and

customer data as the starting point, the digital service platform is used to effectively connect all aspects of security management to ensure the smooth service process and the security risk control of non-resident users.

2.1. Customer Classification

According to the current situation of customer classification and management in the same industry and the company, non-resident customers are classified according to user definitions and gas consumption standards [4]. Non-resident users refer to the users of enterprises and institutions that use gas to engage in production, manufacturing, management and service, and are specifically divided into industrial users, commercial users and public welfare users. The first industrial user refers to the unit user with industrial nature, which is engaged in industrial or other production users with gas as the raw material or fuel for production, such as manufacturing, electricity and other production industries. Secondly, commercial users refer to commercial unit users, which are operating gas units for profit purposes, such as the hotel industry, catering industry and other industries. In addition, public welfare users refer to other non-resident users in addition to industrial users and commercial users, including schools, hospitals, social welfare institutions, elderly care institutions, as well as public institutions, administrative agencies, troops and other units that use gas as domestic gas.

2.2. Entry investigation

After receiving the gas application from non-resident users, the market development staff of the Marketing Department will make a statement and set up the project, then communicate with the customers and make an appointment for on-site inspection. After classifying the customers at the user site for a second time, if the developers judge that the customers are resident users, they will be transferred to the business hall to take charge of follow-up ventilation matters. If it belongs to non-resident users, the users are divided again into small non-resident users and users involved in ground pipe excavation.

2.3. Scheme Design

If it is a 25m³ gas meter user, the Marketing Department will produce the design plan and drawings; if it is a user involving ground pipe excavation and the gas meter is not more than 40m³, the design needs to be commissioned, and the design company will be contacted for on-site investigation and design. If the gas meter used by the user exceeds 40m³, the gas construction shall be carried out separately as agreed in the contract. The subsequent process is only for non-resident user items under 40m³.

2.4. Submit for approval for construction

If it is a 25m³ gas meter user, the contract is signed after the user agrees the design scheme, and the system lottery of the required regional company is conducted by the construction unit appointed by the China Foreign Contract; If the user is involved in ground pipe excavation and the gas meter does not exceed 40m³, it can sign a contract with the user after investigation and confirmation of construction. After the design company makes a drawing, the Marketing Department shall report the drawing to the regional market planning Bureau of the user's administrative region, and the engineering Department shall report the excavation and traffic approval to the Water Bureau and the Housing and Urban-Rural Development Bureau of the administrative region of the user. Then the engineering department lottery number, signed by the molecular company outsourced construction units to carry out the project construction.

2.5. Acceptance and Delivery

If it is a 25m³ gas meter user, the safety officer (office) shall organize the operation department, the construction party, the safety officer (office) and the owner to check and sign after the construction is completed; If it belongs to the user involved in the excavation of the ground pipe

and the gas meter does not exceed 40m³, the engineering department shall organize the acceptance after the completion of the construction, and the pipe network, the business hall, the construction party, the supervisor and the owner shall conduct the acceptance and sign the acceptance.

2.6. Ventilation ignition

If it is a 25m³ gas meter user, the Marketing Department shall submit the ignition order to the operations Department after acceptance, and after approval, the safety officer and security inspector of the business hall of the user's region shall come to the door for ventilation and ignition. Meanwhile, the safety officer shall conduct safety education, safety training and daily gas safety operation for the user, guide the user to establish management regulations, distribute publicity brochures, and attach corresponding safety signs. Upload customer service system into the book; If the user is involved in ground pipe excavation and the gas meter does not exceed 40m³, the Marketing Department shall approve the ignition order and submit the gas shutdown to the pipe network department, which shall issue the gas shutdown notice to the business hall to which the user belongs. After acceptance, the business hall shall issue the specific information of the gas shutdown notice to the users in the gas shutdown area. After the gas shutdown, the safety personnel and security inspectors of the business hall in the business hall to which the user belongs shall come to the door for ventilation and ignition. At the same time, safety personnel will conduct safety education, safety training and daily gas safety operation for users, guide users to establish management regulations, distribute publicity manuals, paste corresponding safety signs, and upload customer service system into the book [5,6].

2.7. Routine Security Check

The security team leader should draw up the monthly security work plan and arrange the security work reasonably. The security personnel of the business hall do the security check work according to the monthly security check plan, enter the user's security check information into the customer service system, upload the user's security check information, and file the security check record documents uniformly, at the same time, guide the user's safe gas use during the security check process, and carry out the publicity of safe gas use and saving gas use. The safety management personnel of the business hall shall conduct at least one gas safety inspection for non-resident users every year, and be responsible for sorting out and analyzing the hidden dangers detected by non-resident users in a timely manner, and tracking the rectification situation. If there is no rectification, the company shall submit a report to the Security and Technical Information Department of the branch company, and the branch company shall send a letter to the user to implement the rectification work.

2.8. Security check Contents

According to the corresponding security standards and standards for non-resident users, combined with the actual work, security personnel should check including but not limited to: gas pipelines, facilities for gas leakage, damage, corrosion loose and other phenomena, whether it is modified without permission, whether it is used as the ground of other electrical equipment, whether there is rust, heavy objects hanging; Check the user's gas facilities (user's gas pipelines, pressure regulating devices, valves and measuring instruments) for collision, damage, leakage and other abnormal conditions, whether there is a change in gas pipelines and facilities, or change the kitchen or balcony use, or cover up, enclosed gas facilities resulting in non-compliance with the code requirements; Check whether the tightness of the compensator interface and the adjustment of the compensation amount are normal, and whether the underground pipeline has abnormal gas odor and gas leakage; Check whether the metering instrument is normal, focusing on whether the gas meter has abnormal sound, whether there

is a stop or small fire (small flow) stop phenomenon; Check whether the alarm system and exhaust system are in normal use and annual inspection, and whether the indicating mark is pasted; Check the user's daily safety training, safety management system is perfect and so on.

2.9. Hidden Danger Management by level

Combined with the actual work, the security risks of non-resident users are divided into three levels, that is, one, two and three levels. First of all, the first class hidden danger is defined as: very serious safety hidden danger, with real-time danger or in violation of the national norms and regulations, the need to make immediate rectification, if not implemented to improve, if necessary, should cut off the gas supply. Note: Real-time danger refers to the leakage that may cause the safety of the client's relevant gas facilities and cause gas shutdown, poisoning, fire, explosion and other accidents. Specifically include: gas leakage, in violation of the national regulations and prohibitions of client gas facilities, straight water heaters, water heaters or water heater smokeless pipe and smoke pipe installation is not standard.

Second, secondary hidden dangers are defined as: serious security risks, with foreseeable dangers, to the customer on-site rectification suggestions, if not immediate improvement, need to contact the customer to follow up until improvement. Specifically include: serious corrosion of gas meters, serious corrosion of pipelines, private reform, private connection of gas pipelines or facilities, illegal grounding lines, overdue fuel, illegal installation and use of gas supply systems or gas sources.

Finally, Level 3 is defined as a general security risk, but it is necessary to make improvement suggestions to the customer and follow up in the future. The details include: The gas hose is damaged, aged, has an interface in the middle, and has no clamp installed at both ends of the pipe. No special connection hose is used and the length exceeds the specified length, the gas hose is affected by external forces, the gas stove has no flameout protection device, the gas appliance is in poor condition, the use of fuel appliances, pipelines, gas meters or embedded stoves that do not conform to the suitability of the gas source does not meet the specifications in confined Spaces, buildings or places where the gas appliance is used.

2.10. Audit management

The customer service department of each branch shall be responsible for reviewing the corresponding procedures before the user's ventilation and ignition; The Safety and Construction Environment and Technical Information Department shall conduct an online audit on all users of ventilation ignition. If the corresponding procedures, basic data and drawings are not complete, stoves and alarm and exhaust devices do not meet the standard conditions, etc., ventilation ignition shall not be allowed; The customer service department of each branch shall coordinate with the security and Environment Department and the technical Information Department to formulate the annual inspection plan and the audit index plan; The security and Technical information Department of each branch shall conduct regular online and offline inspections of non-resident users; The safety and Environment Department of the headquarters shall conduct quarterly safety inspections for non-resident users, including but not limited to whether the ventilation ignition process files are complete, whether there are safety hazards, whether the customer safety information is complete, whether the gas appliances are installed with flame out protection devices, and whether the safety alarm and leakage detection and exhaust devices are configured according to regulations.

2.11. Data Archiving

The user file is the basic data of a non-resident user, and it is also the important information of each branch of urban gas enterprise. Especially in the case of gas accident, the user file can be an effective legal proof. It is very important and necessary to build a detailed user profile for this purpose. The establishment of a complete user profile shall include the following:

Information related to user account opening including but not limited to: Account opening application, payment, ventilation ignition order, ventilation ignition rectification work order, user installation and change installation related information, user payment related information, client security check related information, hidden trouble rectification notice, emergency, emergency repair, maintenance work record, SMS or paper, client site hidden trouble pictures and rectification completed pictures, etc. Its user files shall be one for each account and shall be retained.

3. User Requirements

3.1. Security responsibilities and obligations

- (1) Clear division of responsibilities: The customer should clearly define the division of responsibilities for safety management to ensure that each relevant person performs safety management responsibilities within their scope of responsibility.
- (2) Safety publicity and education: The Customer is responsible for promoting natural gas safety knowledge to employees, carrying out publicity and education activities, raising employees' awareness of potential hazards, and ensuring that everyone understands and complies with safety regulations.
- (3) Compliance operation: In the process of using natural gas, customers must strictly abide by national and local regulations, standards and relevant regulations of natural gas suppliers to ensure compliance operation and prevent violations from causing safety accidents.

3.2. Gas use management

- (1) Gas use plan: Customers should establish a reasonable gas use plan, according to the production and operation needs to develop appropriate gas consumption, to avoid excessive or insufficient gas use, to ensure the normal progress of production and operation.
- (2) Gas monitoring: Establish a gas monitoring system, real-time monitoring of gas use, timely detection and solution of abnormal situations, to ensure the safety and efficiency of natural gas use.
- (3) Gas use control: The customer shall establish a gas use control mechanism to effectively manage the gas use equipment, ensure the normal operation and safe use of the equipment, and reduce the risk of equipment failures and accidents.

3.3. Device Security

- (1) Equipment maintenance: Customers should develop and implement regular equipment maintenance plans to ensure that the equipment is in good condition, reduce the probability of equipment failure, and extend the service life of the equipment.
- (2) Equipment update: Customers need to timely update and upgrade the equipment when the equipment is aging or does not meet the safety standards, to ensure that the equipment meets the latest safety technical standards and ensure the safety of gas use.

3.4. Safety inspection and monitoring

- (1) Regular inspection: Customers should regularly carry out safety checks on the equipment, including key equipment such as pipes, valves, pressure gauges, to ensure that they are intact and prevent safety accidents caused by equipment problems.
- (2) Monitoring system: The establishment of equipment monitoring system, real-time monitoring of the operating status of the natural gas system, timely alarm and treatment of abnormal situations, to prevent accidents.

3.5. Emergency handling

(1) Emergency plan: The customer shall prepare an emergency plan for natural gas accidents, clarify the emergency treatment process, and ensure that in the event of an accident, it can respond quickly and orderly to reduce accident losses.

(2) Training exercises: Customers should regularly conduct natural gas accident emergency drills to improve employees' emergency handling ability, ensure rapid response in emergency situations, and reduce the impact of accidents.

3.6. Training and exercises

(1) Staff training: The customer shall regularly organize natural gas safety training to ensure that employees understand the knowledge and skills of safe use of natural gas, and improve their safety awareness and emergency response ability.

(2) Exercise plan: Formulate and implement regular exercise plan to simulate natural gas leakage, equipment failure and other emergency situations, improve employees' response ability in emergencies, and ensure the effective implementation of safety management system.

3.7. Safety records and reports

(1) Establish a record system: Customers need to establish a safety record system to record equipment inspection, maintenance, training and other details for traceability and analysis to ensure that safety management work is well documented.

(2) Accident report: When a natural gas accident occurs, the customer must immediately report to the relevant regulatory authorities, and conduct a detailed accident investigation report to find out the cause of the accident and develop preventive measures to avoid similar accidents.

3.8. Compliance with Regulations

(1) Rules and Regulations: Customers shall ensure that their natural gas use behaviors comply with national and local regulations, comply with relevant safety standards, and prevent safety accidents caused by illegal behaviors.

(2) Compliance review: Customers are required to conduct regular compliance reviews to ensure that their safety management system complies with the latest regulations and standards, timely detection and correction of violations, and maintenance of gas safety.

3.9. Communication and cooperation

(1) Communication with suppliers: Customers should establish an effective communication mechanism with natural gas suppliers to exchange safety information in a timely manner and jointly improve the level of safety management.

(2) Cooperative response: In the event of a safety incident, the customer shall cooperate closely with the natural gas supplier and relevant regulatory authorities to jointly deal with the accident and ensure that the accident is handled in a timely and effective manner.

3.10. Technical update and upgrade

(1) Regular assessment: The customer shall regularly evaluate the relevant technology of natural gas use to ensure that it complies with the latest safety standards and timely detection and elimination of safety hazards.

(2) Technology upgrade: When necessary, customers should consider upgrading equipment and technology to adapt to new safety requirements and technological progress, and improve gas safety and management efficiency.

4. Closing remarks

To sum up, with the rapid development of urban gas business in China and the increasing number of non-resident users, the incidence of gas accidents has gradually increased. In order to fundamentally avoid the occurrence of some accidents, we must first improve the user ventilation process, improve the quality of security checks, enhance the safety of gas equipment, and improve the safety management level of gas enterprises. At the same time, improve the gas safety awareness of non-residential gas users and develop and implement a series of gas safety use management systems to reduce safety hazards, so as to ensure the long-term safety and reliability of gas use.

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