

Original Research Article

Discussion on Transportation Management of Railway Dangerous Goods

Yongcai Xu, Jibin Xu, Yuchang Ni, Xinyong Duan

College of Railways, Leshan Jiaotong University, Sichuan, China

ABSTRACT

In recent years, with the rapid development of China's economy, chemistry, atomic energy, electrical and petroleum industries have played a huge role in promoting the development of social economy. Industrial production in the increasingly use of dangerous goods as the production of raw materials, and in the production process to produce many toxic waste, enterprises in order to complete the normal production activities, it must be dangerous goods transport, and rail transport is one of the most The main form. According to a study conducted by the National Transportation Administration, 54% of the 3222 incidents involving chemical dangerous goods reported in 2010-2012 occurred in the production and storage process, and 41% occurred during transport, 5% due to other reasons. In all modes of transport, because the railway is the largest amount of traffic, the risk of rail transport seems to be the highest. However, taking into account the dangers of life and property, because most of the railway through the residential area, in the event of an accident, will endanger more people's lives, property safety, so the greater the risk of rail transport. Dangerous goods transport is a great threat to the lives and property safety of the people. Therefore, all countries in the world are actively trying to find ways and means to control and reduce the dangerous goods transport accident. In view of this, this paper mainly discusses the current railway sector in China in the transport of dangerous goods in the existing problems, in response to these problems, put forward the corresponding countermeasures.

This paper is the use of normative research methods of the thematic research. The first part (the first part) elaborates the concept of dangerous goods and the concept of dangerous goods of railway; then (the second part), elaborates the dangerous goods transportation safety requirements and the dangerous goods transportation accident type; second (the third part Finally, (the fourth part), the corresponding measures are put forward to improve the safety management of railway dangerous goods transportation, to maintain the stable order of the society and to ensure the life of the masses of the people, so as to analyze the safety management problems in the transportation of dangerous goods in railway; Stability, while ensuring the safety of rail transport.

KEYWORDS: : railway dangerous goods; dangerous goods transport; road safety

Introduction

The use of dangerous chemicals in the production of rail transport is bound to use some dangerous chemicals, the transport of dangerous chemicals for rail transport safety has a very important impact. Railway transport of dangerous goods is not only responsible for heavy, difficult, and demanding, by the community wide attention. There will be very serious consequences in the event of an omission of the transport of dangerous goods in the railroad, not only causing significant economic losses but also causing extremely adverse effects in society. This requires the relevant personnel to strengthen the safe management of railway dangerous goods transport, to avoid security incidents.

In the development of the national economy and all walks of life are inseparable from the production of dangerous chemicals, which need to do a good job of dangerous chemicals transport. The safety management of railway dangerous goods is related to the stability of people's life and the stability of social order. In view of the loopholes and problems in the current safety management of dangerous goods transport, the relevant departments should adopt targeted measures to improve the safety management of railway dangerous goods Ability.

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1. Definition of Dangerous Goods and Concept of Railway Dangerous Goods

1.1. Definition of dangerous goods

Dangerous goods or hazardous Materials refer to: where the friction, impact, pull, contact with fire, sun exposure, temperature changes or encounter the performance of other items and other factors, can occur burning, explosion, poisoning and other personal Injury or property damage accident items, collectively referred to as flammable, explosive, toxic and dangerous goods.

1.2. Concept of Railway Dangerous Goods

According to the Rules for the Administration of Railway Dangerous Goods Transportation, railway dangerous goods refer to goods that are radioactive, corrosive, infectious, toxic, flammable and explosive in railway transportation. The transport of rail transport involves the storage, handling and transportation of dangerous goods. If the property is likely to cause damage to property and personal injury or death during this process, the cargo is subject to dangerous goods [1].

The Regulations on the Administration of the Transport of Dangerous Goods by Railways have identified more than 10,000 dangerous goods, which are classified as corrosive substances, radioactive substances, infectious substances, toxic substances, organic peroxides, oxidizing substances in accordance with the transport requirements and risks, flammable gases, flammable liquids, flammable liquids, gas explosives, and miscellaneous hazardous substances. Dangerous goods are of a different nature and risk, even if the same dangerous goods tend to have a variety of risks.

1.3. There is a double relationship between human society and dangerous chemicals

There is a double relationship between human society and dangerous chemicals. On the one hand, the development of modern society cannot be separated from dangerous chemicals. In the space industry, national defense construction, transportation, medicine and health, food, agriculture, industry and other industries and fields are inseparable from dangerous goods. From this point of view, dangerous chemicals can improve people's quality of life and promote social economic development. On the other hand, dangerous chemicals are dangerous and can cause great harm to the natural environment and human health. If the mismanagement will bring serious property damage, and the health of the relevant personnel and even a threat to the surrounding environment caused serious pollution. All countries in the world have paid close attention to the dangers and destructive power of dangerous chemicals. In the process of economic development, more and more dangerous chemicals are applied to production, resulting in a series of radiation, corrosion, poisoning, leakage, explosion, fire and other accidents, resulting in serious property damage and casualties, but also caused great damage to the surrounding environment. Dangerous chemicals have a total of six disposal areas, including waste disposal, use, sale, transportation, storage, production, every link is dangerous, dangerous chemicals safety management long way to go.

2. Dangerous goods transport safety requirements and dangerous goods transport accident type

2.1. Safety requirements for dangerous goods transport

Due to the different nature of the dangerous goods, the need for reasonable arrangements for transport to ensure safety. Countries of dangerous goods transport safety requirements are different, here, the author mainly introduces China's dangerous goods transport requirements. General requirements are as follows: (1) transport vehicles and their tools corresponding fixed. (2) Loading and unloading of dangerous goods, should be suspended dangerous goods marked Peugeot. (3) The shipment of dangerous goods, vehicles should be equipped with the corresponding fire, explosion-proof, waterproof, anti-sun and other facilities, and equipped with the corresponding fire equipment and anti-virus equipment. Shipping powdery flammable, explosive, toxic and dangerous goods, should be to prevent dust flying measures. (4) Cargo transportation of dangerous goods, should be in accordance with the provisions of the time, the specified route and speed. Do not dump dangerous goods on the railway. Parking should be with other vehicles, open fire places, high-voltage wires, warehouses and densely populated, to maintain a certain safe distance. The cylinder head of the cylinder container should be in the same direction, and the cylinder valve and the total valve should be closed during transport.

In order to ensure the safety of transport, the state of flammable, explosive, toxic and dangerous goods packaging and equipment also have strict requirements. Above, the author only enumerates some of the relevant safety requirements. Details can refer to the relevant provisions of the state.

2.2. Type of dangerous goods transport accident

With the progress of science and technology, dangerous goods production, storage and transportation scale is growing, the production process out of control, storage and handling violations of safety requirements, traffic accidents and other causes of major accidents caused by the frequency and consequences are not reduced, but Significantly increased. Analysis of accident data shows that the types of accidents with high frequency and serious damage occurred during the storage and transportation of dangerous goods were mainly fire accidents, explosion accidents and gas leakage accidents.

Fire accident

A fire accident is an accident that causes fire and causes property damage or casualties. The national standard 'fire classification' (GB4968-85) according to the characteristics of physical combustion will be divided into four categories: Class A, B, C and D fire. This classification method has implications for fire and firefighting, especially for the selection of fire extinguishing agents and fire extinguishing equipment, but it is not helpful in predicting the loss of fire accidents. According to the duration of the fire, the fire can be divided into instantaneous fire and non-instantaneous fire. Instant Fire refers to a very short fire, such as fireball and flash fire. A non-instantaneous fire is a fire that lasts for a long time, such as a pool fire. Pool fire is the scene of the fire a layer of liquid volatile substances continue to burn the phenomenon, such as tank fire, oil fire and so on. According to the fire in the open air or confined space, the fire is divided into outdoor fires and indoor fires.

Explosion accident

An explosion is an accidental explosion that causes property damage or personal injury or death for some reason. According to the nature of the explosion reaction, the explosion accident is divided into physical explosion accident, chemical explosion accident and nuclear explosion accident. In the process of production, storage and transportation of chemical dangerous goods, the occurrence of high frequency, serious consequences of the explosion is mainly the following four categories: coagulation phase explosion accident, unconstrained steam cloud explosion accident, a combustible gas (including steam) and dust explosion Accident, boiling liquid expansion steam explosion accident.

Gas leak accident

Gas leakage accident refers to the toxic gas or steam accidentally leaked into the air, and spread in the air, so that the source of leakage near the evacuation or take effective protective measures of poisoning such an accident phenomenon. Depending on the duration of the leak, the gas leak is divided into instantaneous leakage and continuous leakage. Instantaneous leakage is a very short duration of the leak, continuous leakage refers to the longer duration of the leak.

2.3. Railway dangerous goods transport management problems

Related business unfamiliar, security awareness is weak

Some railway dangerous goods transport practitioners on the relevant laws and regulations to understand very little, lack of business knowledge, often for the local interests of illegal operations, resulting in overweight, high loading. Part of the overall quality of the escort is not high, the cultural level is low, the lack of understanding of the provisions on the safe transport of dangerous chemicals, the dangerous nature of the dangerous chemicals shipped also know little, in the event of dangerous chemical leakage or cause a fire Accidents often do not know how to deal with, cannot take effective measures in the first time. Some of the escorts even leave their duties, so that the loss of monitoring of dangerous chemicals, leading to accidents. Some of the shippers to achieve the purpose of the railway carrier, or to reduce the freight, or in order to transport as soon as possible to send or to facilitate the car, intentionally harsh, false product name, the characteristics of the goods, the actual risk, dangerous ingredients or concentration and water content. hidden or reported, or the name of non-dangerous goods posing as a substitute for dangerous goods, and the station accepted the carrier did not seriously check, resulting in misuse.

Hazardous Chemicals Transport Vehicle Existing Technical Issues

The safety of the shipment of dangerous chemicals the technical condition of the vehicle is an important factor in causing an accident. A good vehicle technical condition is the basis for safe transportation of dangerous goods. If the vehicle condition is not good, such as tank body leakage, valves, covers, mats and instruments and other accessories, accessories are not complete or bad state, will cause the goods leak, causing a fire and other accidents, will seriously affect the railway transport traffic safety, leading to major accidents. Such as; April 4 to April 28, 2012, the whole road for four consecutive liquefied gas tanker leakage accident, the main reason for the leakage is the vehicle tank with Weld

and trachoma, pressure gauge device and the tank thread connection break and Built-in safety valve spring break and other vehicle technical conditions of the problem.

Vulnerability in the management of hazardous chemicals

Dangerous goods handling stations and special lines (special railway) location with the acceleration of the urbanization process is facing a serious test. Some of the old special line of a few easy to change its main, from the general cargo loading and unloading line transformation; some temporary line, extension, not long-term; some wiring, storage tanks, each side urban planning long-term And the local quick success of the short-sighted there is a contradiction. Dangerous goods facilities, equipment appears to be simple. Railway dangerous goods handling station dedicated warehouse less, and the vast majority of the old library from the transformation, modern alarm, automatic fire, seizure (monitoring) test, personal protection and other equipment and supplies lack of quantity. In addition, in the comprehensive processing station, mostly with ordinary forklifts and trolleys for dangerous goods loading and unloading operations. Some stations, although the use of explosion-proof forklift or trolley operations, but the cart on the role of explosion-proof copper, nickel plate has been exhausted, not up to explosion-proof, anti-static function. System construction is not kept up, the new 'railway dangerous goods transport management rules' after the implementation of many enterprises and part of the station is still 'old way'; some systems and regulations are not targeted, security agreement, sharing agreement, transport agreement Side, fill in the seal. In the system of scientific, targeted, operability needs to be strengthened. In addition, the railway transport management at all levels to accept the carrier is not strict, so that part of the shippers or special lines, special railway and other business units in the absence of dangerous goods transport qualification is still engaged in the case of dangerous goods carrier, the station and the staff did not For the transport of dangerous chemicals and so on.

Accident caused by accidental rescue

Hazardous chemicals in the event of leakage, fire and other accidents, if the rescue will lead to the disaster will not expand. If the victims of the accident scene do not understand the characteristics of the hazardous chemicals that are in the event of an accident, such as whether the chemicals are dissolved in water? What is the most suitable firefighting equipment and fire method? What should you pay attention to during the rescue process? After the leakage of dangerous chemicals, if the rescue properly, you can avoid the occurrence of major accidents, on the contrary, if the emergency rescue in the power of the weak, or even the rescue method is not appropriate, it may cause heavy casualties or property damage.

3. Measures to Improve the Safety of Railway Dangerous Goods Transportation

3.1. strict qualification, to strengthen the training of practitioners

In accordance with the relevant provisions of the State Council and the Ministry of Railways, the consignor and the carrier of the transport of dangerous chemicals in the railway shall obtain the corresponding transport qualification; the freight forwarders, the detainers, the loading and unloading personnel and the relevant management personnel engaged in the transport of dangerous chemicals shall Through the professional training of qualified training departments, and obtain training certificate. The Ministry of Railways has a relatively complete training programs and assessment measures, the training content, training time, assessment criteria are clearly defined. And training institutions should also be carefully treated every time the training tasks to ensure the quality of training so that everyone engaged in the transport of dangerous chemicals transport operators and managers have a good professional quality and emergency response capabilities. The training staff should not be just

The training as a task to complete, as long as you can get on the line, as the training content is just listen to it, to deal with the exam on the line. Only the training institutions and participants both sides pay attention to training, in order to make the training effect really implemented.

3.2. Strengthen the carrier management, strict transport of dangerous goods inspection

Dangerous goods handling when transporting dangerous goods, it is necessary to strictly follow the relevant provisions of the Regulations on the Administration of Railway Transport Safety, the Regulations on the Administration of Hazardous Chemicals and the Rules for the Administration of Railway Dangerous Goods Transportation. (Hereinafter referred to as the 'Regulations') for the requirements, for those who do not have the qualifications of shippers, as well as 'for the provisions of' the provisions of the Ministry of Railways, 'Railway dangerous chemicals transport management station (special line, special railway)' Not included in the processing station, special lines, special railways, dangerous chemical name, will be prohibited for transport. The contents of the review mainly include whether the shipper has the qualification of the shipper of dangerous chemicals, the consignee of the consignment note and the enterprise and

personnel of the Certificate of Qualification Certificate of Railway Dangerous Chemicals Shipper and the Certificate of Training of Railway Hazardous Chemicals Transportation The name is the same. Consignee, the goods name is in line with the Ministry of Railways announced the 'handling requirements' requirements. Whether the shipper signed a transport agreement with the station, whether the shipment of the self-contained vehicle meets the requirements, and at the same time, it is necessary to strictly examine the characteristics of the hazardous chemicals, packaging, transport vehicles and other relevant safety and technical conditions, and shall not accept the requirements.

3.3. Implementation of security measures, strict loading monitoring

Railway dangerous goods loading, to strictly in accordance with the provisions of the selection of vehicles. Canned dangerous chemicals loading, must be dedicated to the car, tanker filling the media and tank marked with the name must be consistent, is strictly prohibited vehicle rental, mixed use; vehicle loading, according to the provisions of the stacking of goods , Take the necessary protective measures. Loading operations when the cargo owner to monitor the whole process, the management staff to focus on monitoring. For the larger transport volume of the second category (gas) and the third category (flammable liquid) hazardous chemicals, loading the tanker to strictly enforce the measurement standards to prevent the goods overweight, the occurrence of leakage accidents. The loading station shall determine the weight and volume of the allowable filling of the tanker in accordance with the name of the dangerous chemical shipment carried by the shipper. The shipper shall be required to carry the standard of the filling capacity of the tanker. The shipper shall be required to provide the pound code to the station to verify the weight of the goods. Strict implementation of dangerous chemicals tanker loading operations standards, the establishment and improvement of dangerous chemicals tanker handover inspection system, special lines to track the station to seriously fulfill the agreement signed between the two sides of the transport agreement, and effectively grasp the tanker transfer inspection. In particular, special-line freight forwarders should conscientiously implement the system of tanker inspection, focusing on inspection valve, cover the situation, not to simplify the operating procedures; found the problem in time to contact with the loading unit, and the implementation of two-way sign to ensure that transit is not Occurrence of accidents such as leakage.

3.4. To establish a sound railway dangerous chemicals contingency plans

Railway transport of dangerous goods demanding, difficult, heavy responsibility, in the event of an accident, not only will cause significant economic losses, and will bring serious social impact. To ensure the safety of dangerous chemicals transport, in the event of dangerous goods leakage, fire and other accidents, should be prompt and timely treatment, reduce the negative impact of railway management departments at all levels should establish and improve the 'railway dangerous goods transport contingency plans.' Emergency plans should include emergency treatment procedures, emergency treatment methods and emergency response information network and so on. Railway transport management departments at all levels should be based on dangerous goods shippers and handling stations, special line changes and dangerous goods transport process in the new situation and new problems, timely supplement and improve the dangerous chemicals transport accident contingency plan content, improve the risk Chemical accident rescue information network, for different dangerous goods transport emergency to develop appropriate emergency measures. To carry out regular safety plan exercises to strengthen the construction of emergency rescue team, equipped with the appropriate security and rescue

Aid equipment, improve the ability to respond quickly to enhance the effective handling of railway dangerous chemicals transport emergency, maintain the normal order of the railway transport, to minimize the casualties and property damage and the negative impact on society.

4. Conclusions

Railway transportation of dangerous goods is an important link in the protection of national economy, but also an important factor in maintaining the stability of social order and the stability of people's lives. Therefore, how to ensure the safety of railway dangerous goods transport is a worthy of further study and discussion of the subject. As long as we both from the software and hardware, on the one hand to vigorously improve the quality of practitioners, strict shipper qualification review, conscientiously implement the transport of all aspects of security measures, and constantly improve the emergency rescue plan, on the other hand efforts to improve the storage facilities and equipment Conditions, strengthen the technical force to solve the problems of transport vehicles, it will certainly be able to ensure the safety of rail transport, so that dangerous chemicals in the economic construction to play a greater role in better.

In the development of the national economy and all walks of life are inseparable from the production of dangerous chemicals, which need to do a good job of dangerous chemicals transport. The safety management of railway dangerous goods is related to the stability of people's life and the stability of social order. In view of the loopholes and problems in the current safety management of dangerous goods transport, the relevant departments should adopt targeted measures to improve the safety management of railway dangerous goods Ability.

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