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Contents and Abstracts

OIL AND GAS PIPELINE

1 Analysis on Pressure Variation and Influencing Factors During Shutdown of Oil Product Pipeline. Wen Huaping, Long Zhen.

Abstract: Aiming at the phenomenon of pipeline pressure drop after shutdown of an oil product pipeline, the influence of oil temperature change and terrain on the pressure of shutdown pipeline is analyzed. Based on the historical data of two sections of the pipeline, a calculation model for pressure drop of the shutdown pipeline is established, and the pipeline pressure drop due to perforation by oil thief or leakage is simulated. The conclusions are as follows: (1) After shutdown, the pressure of the horizontal airtight pipeline is kept at a relatively high level, generally 1.5 MPa. At present, the pressure of DX - DF pipeline section is not lower than the saturated vapor pressure under the condition of pipeline operation. Therefore, the empirical formula obtained by using a single oil phase to study the relationship between pressure and temperature is in good agreement with the actual data. (2) Because the pressure of CK - SH section is affected by the high point, gas - phase oil often appears in the pipeline section after shutdown. In the future, the outbound pressure of CK station should be no less than 0.74 MPa, and there will be no gas - phase oil at the outbound high point of CK station. (3) The existence of high points greatly affects the normal detection of leakage and perforation by oil thief during the shutdown period. Therefore, this paper fits the relationship between pressure and temperature during normal shutdown in CK - SH section, and gives a monitoring method for leakage and perforation by oil thief.

Key words: oil product, pipeline, pressure - holding shutdown, pressure drop, analysis.

7 Application of Intelligent Pipeline Management System in Integrated Management of Long - Distance Oil Product Pipeline. Du Wei.

Abstract: The definition and basic structure of intelligent pipeline management system are introduced, and the results such as digital management of pipeline, accurate and efficient identification of high - effect areas of pipeline, accurate and efficient pipeline risk assessment, closed - loop management of hidden dangers, obtained by applying this system to integrated management of a long - distance oil product pipeline of SINOPEC in East China are described. Compared with manual management, the

standardized, efficient and accurate system can be used to reduce safety risks, save costs, and improve the intrinsic safety level of the pipeline. At the same time, suggestions were proposed for improving relevant systems and post allocation, strengthening technical exchanges, building a complex talent team, and further improving relevant technologies for intelligent integrated management of pipeline.

Key words: oil product, oil transportation, pipeline, intelligent management system, integrity, management, application.

INFORMATION TECHNOLOGY

11 Development and Application of Self - Service Highway Oil Delivery Platform for Oil Depot in Central China. Xie Shiwei.

Abstract: According to the status of oil depots in Central China, such as large scale of highway loading, uneven arrival of oil loading vehicles, low efficiency of highway delivery, and underutilization of outbound capacity, using Internet plus and Internet of things technology, integrating ERP daily dispatching plan, oil depot access control system and highway oil delivery system, a self - service highway oil delivery platform is developed. Through the development of mobile phones and desktop applications, the functions of automatic distribution of oil delivery plan to mobile terminals, online booking of oil delivery plan, independent payment and invoicing for loading vehicle drivers, intelligent allocation of platform and sorting of oil delivery vehicles, quantitative assessment, online recording and release of illegal information, etc., are provided, and the intelligent, convenient, orderly and efficient highway oil delivery process of oil depot is realized.

Key words: oil depot, highway oil delivery, self - service oil loading, information, system, platform, development, application.

SAFETY TECHNOLOGY

15 Gas Replacement Scheme of Oil Tank in Gas Station Maintenance and Reconstruction. Xu Tianfu.

Abstract: Based on the introduction and comprehensive comparison of the characteristics, market price, density, fire - fighting effect and environmental damage degree of the inert gases such as nitrogen, carbon dioxide, argon, heptafluoropropane and IG541, which are commonly used in oil tank gas replacement during the maintenance and reconstruction of gas station, it is put forward that carbon dioxide is the first choice of oil tank gas replacement medium, followed by nitrogen. Using the calculation method of controlling oxygen concentration and the calculation method of fire extinguishing system, the amount of nitrogen or carbon dioxide used in the replacement of different tank capacity is calculated, respectively. Some problems needing attention in the gas replacement operation of oil tank are put forward, which can provide a reference for the gas replacement of oil tank in the process of maintenance and reconstruction of gas station.

Key words: gas station, maintenance, reconstruction, oil tank, gas, replacement, construction, scheme.

20 Application of Oil Vapor Inhibition Technology in Cleaning Oil Product Tank. Jing Zhonglin, Zhang Yingtian, Shi Aihao, Xie Xinzhou.

Abstract: The traditional cleaning processes of oil product tank, such as water injection method, inert gas injection method, forced ventilation method and natural ventilation method, are prone to process safety risks, long time and high cost. A process plan of oil vapor inhibition technology for eliminating oil vapor in oil product tank is proposed. The mechanism and process of inhibiting oil vapor using inhibitor, special inhibitor characteristics, atomization equipment, power source, electrostatic treatment, related auxiliary parts, and process connection are introduced. The data obtained from application of the technology in a certain oil depot by a third - party inspection organization shows that the application of the technology can significantly inhibit the oil vapor in the process of tank cleaning, improve the safety risk level, work efficiency, and environmental protection.

Key words: oil product, storage tank, cleaning, oil vapor, inhibition, technology, application.

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23 The Present Situation and Reform of Sewage Discharge System in Old Oil Depots. Wang Yifei.

Abstract: There are some problems in the sewage discharge system of the oil depot constructed before 2014, such as low construction standard of domestic sewage discharge, insufficient discharge facilities for production sewage, no emergent leakage collection facilities at the oil depot wharf, no oil leakage and accident sewage collection pool, and no sewage pipe network in the reservoir area into the municipal sewage pipe network, which cannot meet the requirements of the present national standards "Code for design of oil depot (GB 50074 - 2014)", "Standard for pollution control on hazardous waste storage (GB 18597 - 2001 (revised in 2013))" and the No. 34 decree of the Ministry of Environmental Protection on "emergency management measures for environmental emergencies". Corresponding transformation measures are proposed to provide reference for environmental protection of old oil depots.

Key words: oil product, old, oil depot, environmental protection, sewage, discharge, transformation.

QUANTITY AND QUALITY MANAGEMENT

27 Application of Coriolis Mass Flowmeter in Fuel Oil Measurement. Mao Xingzhi.

Abstract: The developing process, working principle and structure of modern Coriolis mass flowmeter were briefly introduced. Referring to some foreign experiments, combined with the characteristics of high viscosity of fuel oil, some problems such as zero drift, temperature, pressure, flow rate and vibration that need to be solved in the application of Coriolis Mass Flowmeter in fuel oil measurement were explored.

Key words: Coriolis flowmeter, development, history,

principle, structure, fuel oil, application, exploration.
30 Application of Stratified Sampling Method Based on Data Analysis in Gas Station Sampling. Ma Zhiyu, Zeng Yongzhao, Chen Xianyin.

Abstract: Although the general survey sampling method used in the oil detection of gas stations can sample comprehensively, it consumes manpower, material resources and time with low work efficiency. Therefore, through the analysis on the information and data of refinery production process, refinery oil specification, oil depot sample index of sales enterprises that affect the representativeness of samples, the stratified sampling method is proposed for sampling inspection of oil products. The correctness of the data reported by the test method and arbitration method was compared, and the aromatics content, being at the high level of the index at the present stage, was strictly analyzed according to warning line to ensure that the sampling conclusion could represent the overall sample quality level. The results proved that the stratified sampling method was representative with the characteristics of high efficiency, fewer samples requirement. This method can be used extensively in oil detection in gas stations.

Key words: gas station, oil product, detection, general survey, stratified sampling, comparison, application.

SAFETY MANAGEMENT

33 Analysis on New Hidden Dangers and Countermeasures in Construction and Reconstruction of Gas Station. Zhang Rong.

Abstract: The new security risks brought by the change of gas station construction and operation mode in recent years are analyzed; firstly, the operation of oil, natural gas, biofuels, electric energy and other kinds of energy in the same station increases the security risks; secondly, the rapid development of city and the lag of drainage system make the gas station subject to flooding; thirdly, the non-oil business of gas station causes the rapid increase of non-oil customers; fourthly, the overweight, ultra wide and ultra large vehicles is increasing; fifthly, the increase of fire sources can bring more hidden danger. The countermeasures in the design stage of new construction and reconstruction of gas station are put forward, such as separating the storage and operation of gas stations with multiple energy sources, burying the storage tanks, raising the design height of the foundation of the gas station and the indoor socket, improving the design of convenience stores, widening the refueling lane, consolidating the gas station floor to improve bearing capacity, and isolating fire source completely.

Key words: gas station, new safety hazard, analysis, new construction, reconstruction, design, countermeasures.

OPERATION MANAGEMENT

36 Analysis on the Role of "Home Culture" Construction to Promote Construction of Enterprise Team. Jin Yueyang.

Abstract: In view of the characteristics of oil sales enterprises such as "many points, long lines, wide coverage" and complex staff composition, the important role of strengthening the construction of enterprise teams and groups is briefly described, the role of "home culture" construction in promoting team construction, enhancing team centripetal force, stimulating employee participation and innovation is pointed out, and the ways and methods of "home culture" construction to promote team construction are put forward: the first is to cultivate a "leader" to build a team with high executive ability; the second is to provide a good "magnet" to build a team of unity and cooperation; the third is to enhance the "source power" to build a team full of innovative passion; the fourth is to act as a "lubricant" to build a team with high efficiency.

Key words: oil product, sales, enterprise, team, "home culture", construction, role.

39 Some Suggestion to Prevent the Risk of Outsourcing Contract. Huang Shunlian.

Abstract: The definition of outsourcing contract and its differences with other service contracts is briefly introduced. Some problems in the signing process of outsourcing contract, such as nonstandard and inconsistent contract text, incomplete contract elements or un-precise terms, lack of authorization documents, confusion with labor dispatch contract, etc., and some problems in contract implementation, such as real labor covered by fake outsourcing, replacing management by outsourcing, and the legal risks due to unclear management boundary, are pointed out. The corresponding countermeasures are put forward as follows: the first is to formulate the standard text of outsourcing contract; the second is to sufficiently perfect the terms of the contract text; the third is to distinguish the difference from labor dispatch contract; the fourth is require the contractor to provide a complete authorization document and personnel list; the fifth is to strictly supervise the contract performance process; the sixth is to seriously organize the contract expiration evaluation.

Key words: business, outsourcing, contract, risk, prevention.

42 Risk Analysis of Third Party Payment in Offline Scenarios and Countermeasures. Liu Na.

Abstract: The related concepts of third-party payment and the fund transfer process of using third-party payment as an acquiring institution in offline scenarios are introduced. Taking Alipay as the representative of the third party payment, from the aspects of network risk, account risk, default risk and so on, the fund risk problems faced by merchants in applying the third party payment in offline scenarios are pointed out, and some relevant suggestions for preventing capital risks are put forward, so as to provide a reference for the enterprises to correctly apply the third party payment.

Key words: enterprise, offline, third party payment, capital, risk, prevention, suggestion.

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