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Contents and Abstracts

STORAGE TECHNOLOGY

1 Analysis on Security Detection and Appraisal of Space Truss Canopy in Gas Station. Feng Zhaoping, Wang Yong, Yan Xiuan.

Abstract: According to the relevant national standards, i. e. , " Technical Standard for in - site testing of steel structure (GB/T 50621 - 2010)", " Technical standard for inspection of building structure (GB/T 50344 - 2004)", " Technical specification for space frame structures (JGJ 7 - 2010)", " Code for acceptance of construction quality of steel structures (GB 50205 - 2001)", " Standard for appraisal of reliability of civil buildings (GB 50292 - 2015)", the design of a canopy was checked using 3D3S design software. Integrating the field measuring data with the checking results, a steel canopy without design document in a gas station was appraised for its safety and the appraisal conclusion was achieved, and the anticorrosion and reinforcement measures were put forward, providing a reference for appraisal of similar steel canopy in gas station.

Key words: gas station, steel structure, canopy, safety, detection, appraisal.

OIL AND GAS PIPELINE

4 Analysis on Arrival Time Deviation of Mixed Oil Head in East and North Lines of Northern Jiangsu Oil Products Pipeline. Yang Guang, Wang Jian.

Abstract: Through the calculation and analysis on the effects of temperature and pressure on the oil volume and pipeline volume, the reasons causing the deviation between the calculated and actual arrival time of mixed oil head in the east and north lines of Northern Jiangsu Oil Products Pipeline are discussed with the following conclusions obtained: firstly, the influence of temperature on the oil volume of each section of the pipeline and the effect of pressure on the pipeline volume are obvious; secondly, the influence of pressure on the oil volume of each section of the pipeline and the effect of temperature on the pipeline volume are

relatively negligible; thirdly, the mixed oil head arrival time directly affects the scheduling of intermediate stations and products cutting of end station, which should be corrected according to the working conditions.

Key words: oil product, oil pipeline, mixing oil head, cutting, time, deviation, calculation, analysis.

GAS REFUELING STATION

9 Bending Deformation Analysis and Compensation Installation of Low - Temperature High - Pressure Pipeline in L - CNG Refueling Station. Luo Kaihong, Liao Jiangnan.

Abstract: According to the problem that in the process of converting liquefied natural gas (LNG) into compressed natural gas (CNG) in a L - CNG refueling station, due to the rapid change of pressure and temperature difference, the low - temperature high - pressure pipeline of gas station is liable to bending deformation, the reasons of bending deformation are analyzed. Based on the check and verification of the material and specification, bearing pressure, and installation mode and length of the pipeline, the shrinkage compensation and shrinkage stress was calculated, the compensation mode, selection principle and installation method were put forward. The use of Π type compensator was recommended, the preparation and application method of the Π type compensator was introduced.

Key words: L - CNG refueling station, high - pressure low - temperature pipeline, bending deformation, analysis, compensation, installation.

14 Comparison and Selection of Schemes for Capacity Expansion of CNG Refueling Station. Li Lianchao, Xiao Haiming, Liu Dong, Zhang Jianzhong, Zhou Jinguang.

Abstract: According to the supply shortage situation of the SINOPEC Jilin Oil Products Company Daling CNG Refueling Station, investigation on the capacity expansion schemes was carried out. The characteristics of the two schemes, addition of three - stage compressor or installation of one - stage pipeline supercharger, were compared and analyzed from the aspects of production capacity, investment cost, and process operation performance. The results showed that installation of 2 three - stage compressors was more suitable for the requirements of capacity expansion of the Daling CNG Refueling Station.

Key words: CNG refueling station, capacity expansion, transformation, scheme, comparison.

INFORMATION TECHNOLOGY

17 The Conception of Electronic Refueling Card Business in Sales Enterprise. Li Yanghuan.

Abstract: According to the development situation of the increasingly fierce market competition environment and the Internet age, the current situation and shortcomings in the application of solid refueling card

are analyzed, and the conception and plan of electronic refueling card are put forward. The basic concept, design ideas, business processes, application methods of electronic refueling card, and the integration with the solid refueling card are introduced. The advantages and disadvantages of the electronic refueling card are evaluated, which provides a new idea for the sales enterprise on refueling card business.

Key words: oil sales enterprise, electronic refueling card, business, scheme, conception.

ENVIRONMENTAL PROTECTION

22 Research on Capacity Expansion Scheme of Adsorptive Oil Vapor Recovery System. Ma Lin, Chen Ling, Chen Jinghua.

Abstract: In order to solve the problem of insufficient capacity of oil vapor recovery system in an oil depot, 4 kinds of revamping schemes were compared, and a technology scheme adopting an idle adsorption tank, vacuum pump with original oil vapor recovery equipment in parallel installation was determined. After the transformation, the oil vapor recovery and processing capacity could meet the operation requirements, the average recovery rate of oil vapor was improved, and the gas discharge could meet the requirements of the relevant standards. The scheme was simple, convenient, low - cost with sound oil vapor recovery effect, and was worth popularizing.

Key words: oil depot, adsorptive oil vapor recovery system, capacity expansion, scheme, comparison.

27 Treatment of Wastewater Discharge at Gas Station. Yang Zongde.

Abstract: The current situation of wastewater treatment in a gas station of the Yunnan Oil Products Company was analyzed briefly. The countermeasures were put forward, such as enhancing the awareness of environmental protection, increasing environmental protection investment, implementing strictly the environmental protection system, improving the safety management responsibility system on sewage discharge, and assessing comprehensively the environmental risk of gas stations, to provide a reference for wastewater treatment in gas station.

Key words: gas station, environmental protection, wastewater, discharge, treatment, measures.

QUANTITY AND QUALITY MANAGEMENT

30 Detection and Analysis on the Phenomena Related to Vehicle Ethanol Gasoline. Hua Hunan.

Abstract: In 2014, some vehicles filled with ethanol gasoline had been unable to start, lack of power, and the vehicle fuel pump, filter, and the gas station refueling machine filter were clogged in certain district. According to the national standard "ethanol gasoline for motor vehicles (GB18351)" and other relevant standards, the vehicle ethanol gasoline samples were detected and analyzed. Using scanning e-

lectron microscope, energy dispersive spectrometry, thermal gravity/mass spectrometry (TG - MS) and X - ray diffraction method, the morphology and composition of powder material on the filter element were analyzed; the drag reducing agents were determined using ICP method; in addition, the metal elements in the samples and the denatured fuel ethanol were analyzed and detected. The conclusion was obtained that the phenomenon of vehicle ethanol gasoline is caused by the reason that the filter was clogged with particles formed or precipitated when the sodium in the denatured fuel ethanol was mixed with the drag reducing agents contained in the component oil. Some measures were put forward, i. e. , drag reducing agent should be forbidden to add into gasoline; the filter element of the refueling machine should be timely replaced; the automobile oil circuit should be cleaned regularly; and the high - grade fuel should be used.

Key words: vehicle ethanol gasoline, problems, detection, analysis, solutions, measures.

34 Factors Affecting Determination of Cold Filter Plugging Point of Diesel Fuel. Zheng Chunling, Liu Zhonghua, Liang Ju

Abstract: Cold filter plugging point (CFPP) is an important index to evaluate the low temperature performance of diesel fuel. According to the petrochemical industry standard "diesel and domestic heating fuels - determination of cold filter plugging point (SH/T0248 - 2006)", the factors in the determination of CFPP, such as cooling rate, sample temperature, suction frequency, thermometer position, etc. were investigated by experiment respectively. The results are as follows: when the cold bath temperature is lower and the cooling rate is faster, the measured results of CFPP will be lower; when the initial sample temperature is lower, the measured results of CFPP will be higher; when the number of suction exceeds a certain extent, the measured results of CFPP will be lower; when the distance from thermometer to the cup bottom is closer, the measured results of CFPP will be lower; strict control of the experimental process conditions is the key to accurately determine the results. At the same time, the solution of influencing factors is given, which provides a reference for accurate determination of CFPP of diesel fuel.

Key words: diesel fuel, cold filter plugging point, determination, experiment, result, influencing factor, analysis.

SAFETY MANAGEMENT

36 Discussion on Preparation and Practice of Emergency Plan for Self - Service Gas Station. Hu Anhua.

Abstract: At present, in the self - service gas station, the on - site refueling staff is reduced, the customers lack the necessary safety knowledge and oper-

ation skills, and the original emergency plan does not conform to the self - service refueling practice. The countermeasures are put forward: one is to draw up emergency plans in accordance with the actual situation of the self - service gas station; two is to actively guide customers to participate in safety emergency plan exercise in self - service gas station; three is to show the safety emergency plan publicly.

Key words: self - service gas station, safety, emergency plan, problems, countermeasures.

OPERATION MANAGEMENT

38 The Incentive Mechanism of "Creation Beans" Based on Internet Application. Xie Jianhua.

Abstract: The incentive mechanism of "creation beans" based on mobile Internet application for a quantitative evaluation on employee innovation, creation and service quality is proposed. The establishing background, concept of "creation beans", the construction goal, configuration design, main function and implementation, and application effect of "creation beans" platform are introduced, which provides the exploration for the innovation of marketing mode and stimulation of employee enthusiasm.

Key words: Internet, marketing, staff, incentive, mechanism, exploration.

42 Efficiency Monitoring of Construction Project in Oil Sales Enterprise. Yang Yang

Abstract: In view of the heavy workload of the construction and reconstruction of oil depots and gas stations in sales enterprises at present, the effectiveness monitoring can help to find the problems in project management, and improve the management level of project management. The methods and steps of oil sales enterprise efficiency supervision of construction project are introduced. The existing problems in the effectiveness supervision of oil sales enterprise project are pointed out, such as understanding deviation, monitoring lag, ignoring prequalification and late implementation and supervision, lax supervision of design change, incomplete supervision and rectification for the problems found. And the corresponding rectification measures are put forward: one is to set up the hierarchical working groups to monitor the effectiveness and optimize organizational structure; two is to carry out standardization management and draw up the performance monitoring procedures; three is to strengthen the process control to implement the full supervision of bidding; four is to strengthen the management of design change to strictly control the project investment; five is to comply with the PDCA cycle management for the continuous supervision and rectification.

Key words: oil sales enterprises, construction project, efficiency monitoring, problems, improvements, measures.

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