

### 管理方略

|                              |                             |    |
|------------------------------|-----------------------------|----|
| “审计式”安全检查体系在化工园区的应用.....     | 李莹, 窦小丽, 靳海霞, 王文近, 王云波, 崔希海 | 1  |
| 油库HSE教育培训方法路径研究.....         | 彭洪涛                         | 4  |
| CAPD隐患排查治理管理机制在化工企业中的应用..... | 马蕾, 李强, 张大胜, 潘伟             | 7  |
| EPC模式下LNG储罐桩基工程进度管理.....     | 张崇瑞                         | 10 |
| 制药企业研发质量管理体系存在的问题及对策.....    | 陈云霞, 张贵芹, 黄梦瑶               | 14 |

### 企业政工

|                           |     |    |
|---------------------------|-----|----|
| 推进油田企业党建与生产经营深度融合的实践..... | 李俊玉 | 18 |
| 有感领导在化工安全管理中的应用.....      | 杨雄  | 21 |

### 人才培养

|  |              |    |
|--|--------------|----|
| 新工科背景下热质交换原理与设备的课程思政建设与探索.....         | 张焱, 张仙平, 王迎辉 | 24 |
| 新工科背景下高职院校基于模糊层次分析法的化工类学生综合素质评价研究..... | 刘维华          | 29 |

### 质量与检测

|                            |                           |    |
|----------------------------|---------------------------|----|
| 不同地区粉煤灰合成防渗材料的渗透性能分析.....  | 马喆, 方樟, 孙晓庆, 郝洋           | 35 |
| 煤中氟氯自动分析仪原理及在实验中的优劣分析..... | 康菲, 李起明, 高凯, 房立冬, 李芳, 张佳伟 | 38 |

### 环保与节能

|                              |                   |    |
|------------------------------|-------------------|----|
| 煤化工合成氨工艺与节能优化措施分析.....       | 朱月                | 42 |
| 新型煤化工企业环保管理的难点及对策.....       | 唐珊, 张秀婷           | 46 |
| 70万吨/年裂解柴油加氢装置能耗分析及优化方法..... | 张博                | 49 |
| 化工企业土壤和地下水自行监测工作要点解析.....    | 杨亚政, 徐宣伟, 赵军, 郑秋英 | 54 |

### 技术与信息

|                            |                         |    |
|----------------------------|-------------------------|----|
| 海洋石油平台工艺管线安装技术及质量控制探析..... | 陈林                      | 59 |
| 无人机在管道公司的应用现状及建议.....      | 田明亮, 刘洋, 赵俊丞, 吴杰        | 62 |
| 钽铌矿浮选分离关键技术改进及工艺优化.....    | 姚天龙                     | 65 |
| 高炉炼铁脱硫机理及技术优化研究.....       | 张斌                      | 69 |
| 微泡沫钻井液的发展史与特点.....         | 吴永川                     | 73 |
| 渤海某高温油田新型井下防垢剂的研发及应用.....  | 蒋维军, 吴东明, 李晓亮, 党婧文, 刘志光 | 77 |
| 盐穴储气库水溶造腔技术概述及优劣势比较.....   | 刘浩林                     | 81 |
| 炼厂硫磺回收装置专利技术综述.....        | 马向伟                     | 85 |
| 工业锅炉数字化设计与数字孪生综述.....      | 张富玉, 杜增辉                | 89 |
| 工业4.0视角下PLC系统的优化策略.....    | 李冬冬, 石科                 | 93 |

# 目次

## 安全管理

|                               |                            |     |
|-------------------------------|----------------------------|-----|
| 基于危险源辨识的高校实验室分类分级管理体系建设 ..... | 赵文霞, 宋典达, 刘长宏, 张德君         | 98  |
| 基于智能化管控平台的危险化学品企业安全管理 .....   | 王超, 林建福                    | 101 |
| 高校实验室危化品智能专用柜及管理系统设计 .....    | 郑宏, 房亚兵, 李孟昕, 刘志远, 刘睿萍     | 104 |
| 基层实验室安全管理探讨 .....             | 陈思明, 朱小林, 黄诚, 智丽, 陈祥国, 罗宗玉 | 108 |
| 基于双重预防机制的海洋石油工程项目安全管控研究 ..... | 单晓亮, 付扬威, 于建峰, 石艳芳, 李晋     | 112 |
| 深水气井泄漏量化风险评估方法研究 .....        | 雷正                         | 116 |

## 设备运维

|                                 |                   |     |
|---------------------------------|-------------------|-----|
| 催化裂解装置烟机长周期运行实践策略及效果 .....      | 刘晓成, 刘欣宇          | 120 |
| 阵列密度测井仪原理及常见故障分析 .....          | 肖雷雷, 宛文宇, 刘红旗, 刘海 | 124 |
| 三孔隙度仪器故障维修案例分析 .....            | 刘鑫                | 127 |
| 海上原油储罐罐体腐蚀后评估与改造方法 .....        | 李世平               | 130 |
| 海上吊机液压系统故障诊断与维修 .....           | 王曹阳               | 134 |
| 高炉炼铁自动化控制系统的性能优化及实际应用 .....     | 黄伟                | 137 |
| 蜡油加氢裂化装置高压换热器换热效率降低的研究及对策 ..... | 季立宇               | 141 |
| 催化裂解装置稳定塔底重沸器内漏原因分析及解决措施 .....  | 杨丰华               | 145 |
| 仪表自动化在化工工业方面的应用 .....           | 史占勇               | 150 |

## 工艺管控

|                            |                                 |     |
|----------------------------|---------------------------------|-----|
| MH油田常温转输系统含水原油黏壁温度研究 ..... | 何旺达, 米翔, 王雪娇, 扎依旦·艾尔肯, 吕茜娣, 史航宇 | 155 |
|----------------------------|---------------------------------|-----|

## 工程与施工

|                                |                        |     |
|--------------------------------|------------------------|-----|
| 渤海锦州M油田潜山界面特征及录井识别方法研究 .....   | 刘亚东, 王建立, 谭伟雄, 李亚男, 王菲 | 160 |
| 国内深水气田首次降压开采应用实践 .....         | 齐志彬                    | 163 |
| 管廊隧道在国内炼化企业厂际间的首次规模化成功应用 ..... | 顾朝红                    | 167 |

## 彩页说明

|   |
|---|
| 彩页1——2024中国石油和化工企业500强和分行业百强企业排行榜发布工作全面展开 |
| 彩页2——第十七届全国石油和化工企业管理创新成果申报                |
| 彩页3——石油和化工行业加快建设世界一流企业情况调研组进入新安化工集团       |
| 彩页4——《化工管理》征稿简则                           |

## 补白

工信部：对化工中试项目安评、环评适度包容性审批(45)；国内首个工业设备诊断运维大模型上线(58)；七部门发文推动工业领域设备更新(92)；又一“全球最大”项目，投产！(97)

# CONTENTS

---

## Management Strategy

|   |   |    |
|---|---|----|
| Application of “Audit Style” Safety Inspection System in Chemical Industry Parks<br>.....                                 | LI Ying, DOU Xiaoli, JIN Haixia, WANG Wenjin, WANG Yunbo, CUI Xihai | 1  |
| Research on Methods and Paths of HSE Education and Training in Oil Depot.....   | PENG Hongtao  | 4  |
| Application of CAPD Hidden Danger Investigation and Governance Management Mechanism in Chemical Enterprises<br>.....      | MA Lei, LI Qiang, ZHANG Dasheng, PAN Wei                            | 7  |
| Progress Management of LNG Storage Tank Pile Foundation Project under EPC Mode.....                                       | ZHANG Chongrui  | 10 |
| Problems and Countermeasures of Research and Development Quality Management System in Pharmaceutical Enterprises<br>..... | CHEN Yunxia, ZHANG Guiqin, HUANG Mengyao                            | 14 |

## Enterprise Political Work

|  |            |    |
|--|------------|----|
| Practice of Promoting the Deep Integration of the Party Building and Production Operation in Oilfield Enterprises<br>..... | LI Junyu   | 18 |
| Application of Felt Leadership in Chemical Safety Management.....  | YANG Xiong | 21 |

## Personnel Culturing

|  |   |    |
|--|---|----|
| Exploration on Ideological and Political Construction of the Course of Heat and Mass Transfer Fundamentals and<br>Equipment under the Background of New Engineering.....                           | ZHANG Yao, ZHANG Xianping, WANG Yinghui | 24 |
| Comprehensive Quality Evaluation Research of Chemical Engineering Students in Higher Vocational Colleges Based on<br>Fuzzy Analytic Hierarchy Process under the Background of New Engineering..... | LIU Weihua                              | 29 |

## Quality and Testing

|   |  |    |
|---|--|----|
| Analysis of Permeability Performance of Fly Ash Synthetic Impermeable Materials in Different Regions<br>.....                             | MA Zhe, FANG Zhang, SUN Xiaoqing, HAO Yang                       | 35 |
| Principle of Automatic Analyzer for Fluorine and Chlorine in Coal and Analysis of Its Advantages and Disadvantages in<br>Experiments..... | KANG Fei, LI Qiming, GAO Kai, FANG Lidong, LI Fang, ZHANG Jiawei | 38 |

## Environmental Protection and Energy Saving

|   |   |    |
|---|---|----|
| Analysis of Synthesis Ammonia Process and Energy Saving Optimization Measures in Coal Chemical Industry<br>.....  | ZHU Yue   | 42 |
| Difficulties and Countermeasures of Environmental Protection Management in New Coal Chemical Enterprises<br>..... | TANG Shan, ZHANG Xiuting                          | 46 |
| Energy Consumption Analysis and Optimization Method of 700 000 t/a Cracking Diesel Hydrogenation Unit<br>.....    | ZHANG Bo  | 49 |
| Main Points Analysis on Self-monitoring of Soil and Groundwater in Chemical Enterprises<br>.....                  | YANG Yazheng, XU Xuanwei, ZHAO Jun, ZHENG Qiuying | 54 |

## Technology and Information

|  |   |    |
|--|---|----|
| Analysis on Installation Technology and Quality Control of Process Pipelines on Offshore Oil Platforms.....  | CHEN Lin  | 59 |
| Application Status and Suggestions of UAV in Pipeline Company<br>.....                                       | TIAN Mingliang, LIU Yang, ZHAO Juncheng, WU Jie | 62 |
| Improvement of Key Technology and Process Optimization of Tantalum-Niobium Ore Flotation Separation<br>..... | YAO Tianlong                                    | 65 |
| Research on Desulfurization Mechanism and Technological Optimization in Blast Furnace Ironmaking<br>.....    | ZHANG Bin                                       | 69 |
| Development History and Characteristics of Micro-bubble Drilling Fluids.....                                 | WU Yongchuan                                    | 73 |

# CONTENTS

---

|  |   |    |
|--|---|----|
| Research and Application of New Downhole Anti Scaling Agent in A High-temperature Oilfield in Bohai<br>..... | JIANG Weijun, WU Dongming, LI Xiaoliang, DANG Jingwen, LIU Zhiguang | 77 |
| Overview of Solution Mining Technology for Salt Cavern Gas Storage.....                                      | LIU Haolin  | 81 |
| Summary of Patented Technology on Sulfur Recovery Devices in Refinery.....                                   | MA Xiangwei   | 85 |
| Review of Digital Design and Digital Twin of Industrial Boiler .....   | ZHANG Fuyu, DU Zenghui  | 89 |
| Optimization Strategies for PLC Systems from the Perspective of Industry 4.0 .....                           | LI Dongdong, SHI Ke   | 93 |

## Safety Management

|   |  |     |
|---|--|-----|
| Construction of Classification and Grading Management System in University Laboratories Based on Hazard Identification<br>..... | ZHAO Wenxia, SONG Dianda, LIU Changhong, ZHANG Dejun                     | 98  |
| Security Management of Hazardous Chemical Enterprises Based on Intelligent Control Platform<br>.....                            | WANG Chao, LIN Jianfu  | 101 |
| Design of Intelligent Special Cabinet and Management System for Hazardous Chemicals in University Laboratory<br>.....           | ZHENG Hong, FANG Yabing, LI Mengxin, LIU Zhiyuan, LIU Ruiping            | 104 |
| Discussion on Safety Management of Grassroots Laboratories<br>.....   | CHEN Siming, ZHU Xiaolin, HUANG Cheng, ZHI Li, CHEN Xiangguo, LUO Zongyu | 108 |
| Research on Safety Control of Offshore Petroleum Engineering Projects Based on Dual Prevention Mechanism<br>.....               | SHAN Xiaoliang, FU Yangwei, YU Jianfeng, SHI Yanfang, LI Jin             | 112 |
| Research on Quantitative Risk Assessment Method for Deepwater Gas Wells Leakage.....  | LEI Zheng  | 116 |

## Equipment Operation and Maintenance

|  |   |     |
|--|---|-----|
| Practical Strategy and Effect of Long Cycle Operation of Flue Gas Turbine in Catalytic Cracking Unit<br>.....                                | LIU Xiaocheng, LIU Xinyu                    | 120 |
| Principle and Cammon Fault Analysis of Array Density Logging Instrument<br>.....   | XIAO Leilei, WAN Wenyu, LIU Hongqi, LIU Hai | 124 |
| Case Analysis of Three Porosity Instrument Failure Maintenance .....   | LIU Xin                                     | 127 |
| Corrosion Assessment and Reconstruction Methods for Offshore Crude Oil Storage Tanks .....   | LI Shiping                                  | 130 |
| Fault Diagnosis and Maintenance of Hydraulic System of Offshore Crane.....   | WANG Caoyang                                | 134 |
| Performance Optimization and Practical Application of Blast Furnace Ironmaking Automation Control System<br>.....                            | HUANG Wei                                   | 137 |
| Research and Countermeasures for Heat Transfer Efficiency Reduction of High-pressure Heat Exchangers in Wax Oil<br>Hydrogenation Units ..... | JI Liyu                                     | 141 |
| Cause Analysis and Solution of Internal Leakage of Reboiler at Bottom of Stabilizing Tower of Catalytic Cracking Unit<br>.....               | YANG Fenghua                                | 145 |
| Application of Instrument Automation in Chemical Industry .....  | SHI Zhanyong                                | 150 |

## Process Control

|  |   |     |
|--|---|-----|
| Study on Viscous Wall Temperature of Water-containing Crude Oil in Ambient Temperature Transfer System of MH<br>Oilfield ..... | HE Wangda, MI Xiang, WANG Xuejiao, ZHAYIDAN Aierken, LYU Xidi, SHI Hangyu | 155 |
|--|---|-----|

## Engineering and Construction

|   |   |     |
|---|---|-----|
| Research on the Characteristics of Buried Hill Interface and Logging Identification Method in Bohai Jinzhou M Oilfield<br>.....                 | LIU Yadong, WANG Jianli, TAN Weixiong, LI Yanan, WANG Fei | 160 |
| Application Practice of the First Depressurization Exploitation in Deep Water Gas Field in China .....  | QI Zhibin   | 163 |
| First Successful Large-scale Application of the Pipeline Corridor Tunnel in the Domestic Refining and Chemical<br>Enterprises Inter-plant ..... | GU Chaohong   | 167 |