



Hengyi Industries Sdn Bhd
恒逸实业（文莱）有限公司

Record No: HYBN-T9-11-0005-2025

Hydrocracking & LPG Fractionation Unit
Routine Inspection Implementation Details

加氢裂化和气体分馏装置
巡回检查实施细则

No.2 Refinery Dept

部门：炼油二部

Issued Date: Jan 2025

颁布日期：2025 年 1 月

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	Hydrocracking & LPG Fractionation Unit Routine				
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1 Objectives/目的

In order to fulfill the relevant requirements of the inspection tour in the process management system, better implement the inspection tour on-site and external pipeline inspection work, and meet the needs of full-load production of refinery production units to ensure safe, stable, long, full and excellent operation of the units. These management rules are formulated according to requirement management of the company, together with the production characteristics of the Hydrocracking unit and the LPG Fractionation unit.

为落实工艺管理制度中巡回检查工作的有关要求，更好地落实装置现场巡回检查及对外管线检查工作，适应炼油生产装置满负荷生产的需要，确保装置安、稳、长、满、优运行，根据公司巡检管理要求，结合加氢裂化装置和气体分馏装置的生产特点，特制定本管理细则。

2 Scope of Application/适用范围

These rules apply to the No.2 Refinery Unit of 2.2 million tons/year Hydrocracking unit and 600,000 tons/year LPG Fractionation unit. High-level inspection、closed-light inspection and routine inspection of and the inspection listing time in the system is applicable to the normal production of the device, except in the case of an emergency.

本细则适用于炼油二部 220 万吨/年加氢裂化装置、60 万吨/年气体分馏装置。装置高位巡检和闭灯检查以及巡回检查，制度中的巡检挂牌时间适用于装置正常生产，如果装置出现紧急情况时例外。

3 Job Descriptions/岗位职责

3.1 (monitor position) (班长岗位)

The monitor is responsible for the inspection of the whole device and the deployment, supervision and inspection of operators in the shift; Analyze the problems found in the inspection, deal with them and report the important problems in time. It is required that each shift should have routine inspect 2 times and should not replace each other with external inspection. Monitor or vice monitor work together to organize the closed light inspection.

班长负责对全装置进行巡检，并对本班操作人员巡检工作进行部署、监督、检查；对检查发现的问题进行分析，安排处理，并及时汇报重要问题。要求每班巡检 2 次，不得与外操巡检相互顶替。班长或副班长协同组织闭灯检查。

3.2 (Panel operator position) (内操岗位)

The panel operator is responsible for arriving at the CCR before the shift, check the DCS parameters, interlocking system and equipment operation of the last shift.

内操负责在接班前到总控室，对上个班的 DCS 参数、联锁系统及设备运行情况进行检查。

3.3 (field operator position) (外操岗位)

The field operator position is responsible for the site inspection of the production device area under its jurisdiction, and the pre-inspection system should be carefully implemented before the shift handover to complete the pre-inspection work. and special high inspection is completed regularly. Site environmental protection, hygiene, operation of key equipment, and decontamination and diversion facilities of the plant; inspect the site floor drain, valve and gate according to the requirements of decontamination and diversion management.

外操岗位职责负责对所辖生产装置区现场进行巡回检查，在交接班前要认真执行预检制度，完成预检工作，定期按时完成特殊高位巡检。装置现场环保情况、卫生情况、关键设备运行情况、清污分流设施情况，按照清污分流管理要求对现场地漏、阀门和闸板的状态进行检查。

3.4 Responsibilities of safety engineer 安全工程师岗位职责

The department safety team is responsible for the formulation and revision of this system, and is specifically responsible for the implementation, inspection and assessment of the touring inspection system. Be responsible for routine card reserve management.

部门安全组负责巡检过程中的安全要求，安全提示，和配备的安全防护器具的全过程管理，包括巡检牌和巡检仪的完好性管理。

3.5 Responsibilities of equipment engineer 设备工程师岗位职责

The department equipment team is responsible for the management of the special equipment routine inspection. Responsible for the purchase and daily maintenance of electronic inspection instrument.

部门设备组负责设备特护巡回检查的管理。负责电子巡检仪的采购、日常维护工作。

3.6 The duty officer should be responsible for the supervision and inspection of the shift team during the duty period.

值班干部岗位职责负责值班期间值班干部岗位的巡检落实并对班组巡检情况进行监督、检查。

4 Management Contents/管理内容

According to the on-site inspection personnel, routes and contents, on-site inspection can be divided into the following four types of inspection management.

根据现场巡检人员、巡检路线、检查内容等不同，现场巡检共分为以下四种巡检管理：

(1) Daily inspection management of all posts, including daily inspection management of external operations, class leaders and duty cadres.

岗位日常巡检管理，包括外操、班长及值班干部日常巡检管理。

(2) Inspection management of high-level equipment.

装置高位巡检管理。

(3) Inspection management of external pipelines.

对外管线巡检管理。

(4) Closed-lamp thermal inspection management of Hydrogen system.

临氢系统闭灯热检管理。

4.1 Inspection personnel management requirements/巡检人员管理要求

4.1.1 The personnel of each post should study the inspection system carefully, learn the new regulations, adapt to the new requirements and strictly implement them. The inspection personnel must be qualified for the post, and the personnel such as students and interns can not conduct inspection separately.

各岗位人员要认真学习巡检制度，学习新规定的精神，适应新的要求，严格执行。巡检人员必须具有上岗资格，学岗、实习等人员不得单独巡检。

4.1.2 Each shift should implement the pre-inspection system carefully and complete the pre-inspection work before the shift handover.

各班组在交接班前要认真执行预检制度，完成预检工作。

4.1.3 The monitor of the shift should arrange the spot inspection work of each production post. The spot inspection work cannot be carried out in the form. The person who in charge of the inspection should conduct inspection and maintenance carefully according to the inspection route, inspection time and inspection contents prescribed by the system, and the full-time inspection and inspection and collection as the MES, took over the contents of the shift and found the problem to report to the squad leader and department management personnel in time for request processing.

当班各班组长要安排好各生产岗位的点检工作，点检工作不能流于形式，巡检责任人要按制度规定的巡检路线、巡检时间、巡检内容进行认真的检查、维护，全时程巡检情况及点检情况作为MES外操交接班内容，发现问题及时向班长、部管理人员汇报，请求处理。

4.1.4 The personnel of each professional post should go into the site during working days, check and supervise the process production, process discipline execution, equipment operation, equipment maintenance, safety and environmental protection as well as site sanitation status of the device.

各专业岗位人员工作日要深入现场，对装置的工艺生产、工艺纪律执行情况、设备运行、设备维修维护、安全环保以及现场卫生状况进行检查督促。

4.1.5 The inspection and listing of production should be included in the evaluation of the economic responsibility system of the device. The content of inspection is one of the main contents of the performance evaluation.

生产岗位的巡检情况列入装置经济责任制考核。巡检内容作为操作工上岗考核的一个主要内容。

4.2 labor protection and equipment requirements for inspection 巡检劳动保护和配备要求

4.2.1 Labor insurance/劳保

The inspectors should wear according to the regulations, and wear safety helmet (wearing ear plug), stethoscope, work shoes, explosion-proof walkie-talkie, inspection package, and protective eye mask, gas mask, protective gloves, etc., if necessary. Must wear necessary testing equipment, protective equipment, communication equipment, operation and maintenance tools, and be responsible for handling various problems during the period of inspection.

巡检人员需按规定进行着装，穿工作服，戴安全帽（佩戴耳罩）、听诊器、工作鞋、防爆对讲机、巡检包、如有必要，需要戴防护眼罩、防毒面具、防护手套等；必须佩戴必要的检测仪器、防护用具、通讯设备、操作维护工具，对所巡检时间段内各种问题负责处理。

4.2.2 The electronic routine instrument for class inspection should be used strictly in accordance with the operation instructions, and should be carefully handed over, and should be verified to be in good condition after work. Shift on duty during the take full responsibility for use and maintenance of inspection instrument, found the abnormal situation timely report the cadres on duty or the competent cadres, and in the monitor of the class book or daily inspection recorded in the book, in normal use of inspection instrument fault, has nothing to do with the use of personnel, timely reflect the failure problem to cadres on duty or the competent engineer, competent engineer should timely report JiDongKe, contact the manufacturer for repair.

班组巡检用电子巡检仪要严格按照使用说明书进行使用，认真进行交接，在下班时，要验证巡检仪的完好。班组当班期间对巡检仪的使用和维护负全部责任，发现异常情况及时汇报值班干部或主管干部，并在班长记录本或日检本上做好记录，对于正常使用中造成的巡检仪故障，与使用人员无关的，及时将故障情况反映给值班工程师或主管工程师，主管工程师应及时汇报机动科，联系厂家进行维修。

4.2.3 When the employee inspects the rotating equipment in the machine room, pump room and other areas.

员工在机房、泵房等区域检查转动设备时，必须将巡检包取下放置在安全位置后再进行检查、维护作业。

4.2.4 Appropriate tools and emergency materials should be provided at the workshop height inspection station, so as to facilitate staff up and down as well as emergency use. The inspection staff should strictly observe the uniform dress and labor protection of the "management regulations for high work" during the inspection of high points, and ensure the guardrail with one hand. It is strictly forbidden to walk up and down stairs without grasping the handrail.

部门高处巡检点应配备相应的工具和应急物资，便于员工上下以及在发生紧急情况时应急使用。巡检员工在高点巡检作业过程，应严格遵守《高处作业的管理规定》统一着装及劳动防护，单手确保扶护栏，严禁上下楼梯不抓扶手。

4.2.5 Observe fire and adjust fire in the furnace area should wear fire mirrors to prevent injuries caused by tempering; Adding corrosion inhibitor operation should be performed in

accordance with the requirements of high & dangerous area, with goggles and rubber gloves on.

在炉区进行观火及调整火焰作业，要求配戴观火镜作业，防止发生回火伤人；缓蚀剂加注作业，要求按高危区域作业要求，佩戴护目镜及橡胶手套进行。

4.2.6 Lighting equipment must be equipped for night inspection, and lighting equipment must be explosion-proof type when entering flammable and explosive areas. If no lighting equipment is worn, the inspection during this period should be deemed as a false inspection and should be assessed according to the false record.

夜间巡检必须佩戴照明用具，进入易燃易爆区所配带的照明用具必须为防爆型。如未佩戴照明用具，该时间段的巡视为假巡检，按假记录进行考核。

4.2.7 If it is necessary to ascend or enter the circulation well in the boundary area for meter reading, should obey the relevant safety regulations inspecting of special area. Special areas: areas where hazardous chemicals may leak, restricted Spaces, cross working areas, high points, remote areas, etc

若需登高或进入界区循环水井抄表时，按特殊区域的巡检要遵守有关的安全规定。

特殊区域：指危化品有可能泄露造成危害的区域、受限空间、交叉作业区域以及装置高点、边远区域等。

4.3 Requirements for taking over precheck/接班预检的要求

4.3.1 for monitor (vice monitor) must be in accordance with the 《Hydrocracking and LPG Fractionation unit circuit check system》, the requirements of the inspection line, inspection time, content, focusing on the "post responsibility" inspect technology, equipment, safety, environmental protection and shift labor discipline inspection, the position review key parts, the construction or operation, installation and running in a safe, controlled state, such as coordination to deal with the problems in a timely manner

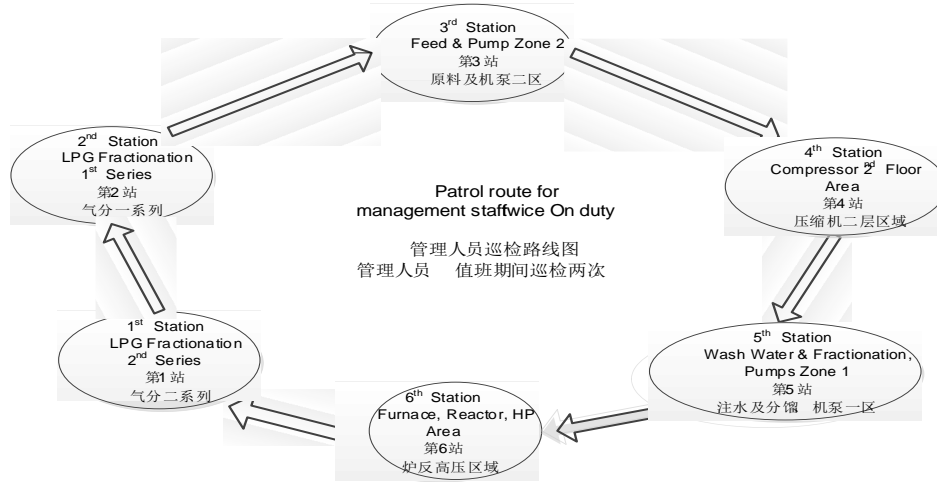
要求班长 (副班长)必须按照《加氢裂化和气分装置巡回检查制度》中要求的巡检路线、时间进行巡检，内容以“岗位责任制”为重点，着重检查工艺、设备、安全、环保、班组劳动巡检纪律、岗位巡检、现场施工或作业、装置重点部位等运行是否处于安全、受控状态，及时协调处理出现的问题

4.3.2 On-site precheck: the monitor or field operator is required to precheck the operation of the device in the last shift from 7:40 ~ 7:55 or 19:40 ~ 19:55 before the shift, hang the precheck card of this shift and take back the precheck card.

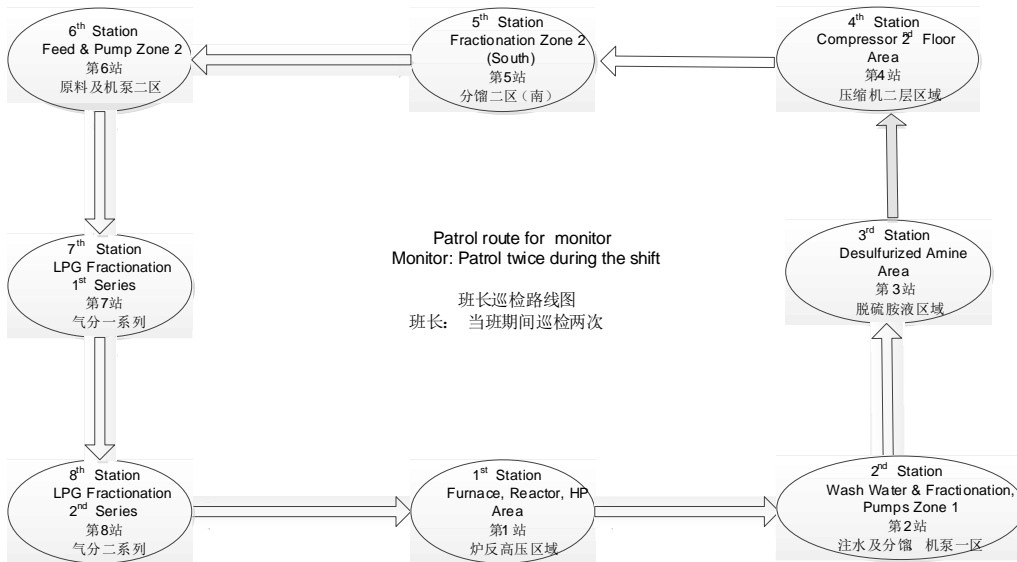
现场预检：要求由班长或外操在接班前的 7:40~7:55 或 19:40~19:55 对上个班的装置运行情况进行预检，并且在交接班会上对检查问题进行交接落实。

4.4 Inspection route for each post: 各岗位巡检路线:

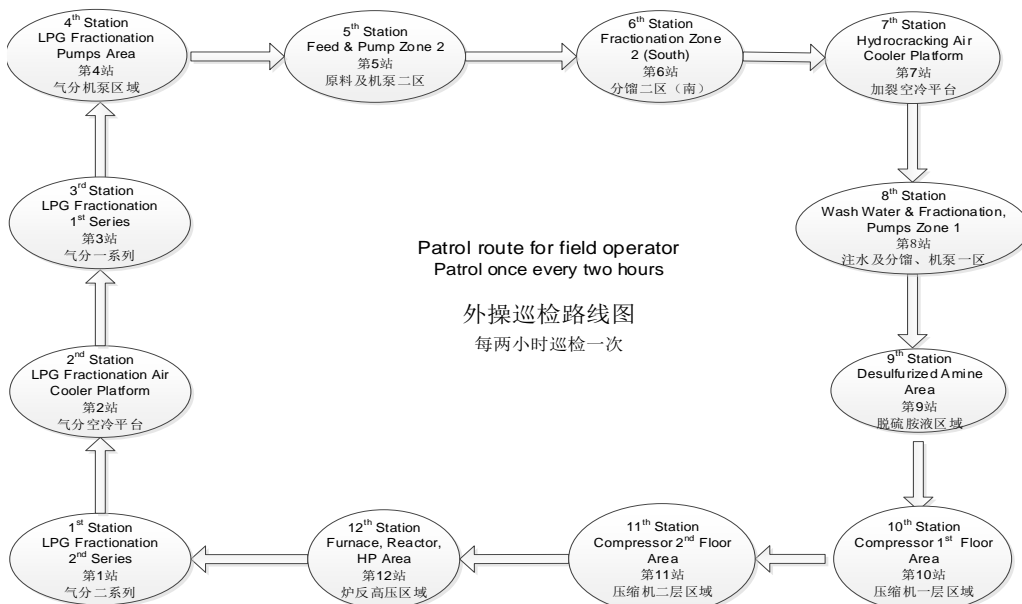
4.4.1 Patrol route for management staff 管理人员巡检路线图



4.4.2 Patrol route for monitor 班长巡检路线图



4.4.3 Patrol route for field operator 外操巡检路线图



4.5 Inspection management of high-level equipment/装置高位巡检管理

4.5.1 Installation high-level patrol: The required day shift is not less than one person, and when the number of personnel is small, it can be patrolled with one person in daily patrol.

装置高位巡检：要求规定日期的白班不少于 1 人进行，在人员较少时可与日常巡检同 1 人巡检。

4.5.2 There are 11 high-level inspection points in Hydrocracking (gas-containing) unit, including 7 Hydrocracking units and 4 LPG Fractionation units. Hydrocracking unit: F101 top platform, R101/2 top platform, C101/2 top platform, C201/2 top platform, C204 top platform, C205 top platform, C206/7 top platform. Air separation device: C101/2 top platform, C201/2 top platform, C203/4 top platform, C301 top platform.

加氢裂化（含气分）装置共设 11 个高位巡检点，其中加氢裂化装置共计 7 个，气分装置共计 4 个。加氢裂化装置：F101 顶部平台、R101/2 顶部平台、C101/2 顶部平台、C201/2 顶部平台、C204 顶部平台、C205 顶部平台、C206/7 顶部平台。气分装置：C101/2 顶部平台、C201/2 顶部平台、C203/4 顶部平台、C301 顶部平台。

4.5.3 The content of high-level inspection is to check the leakage or corrosion of safety valves, pipelines, pressure gauges, thermometers, pressure points of relevant equipment. If faulty is found, it should be registered in the handover book and the equipment hidden trouble registration book in time for prompt processing.

高位巡检的内容为检查相关设备的安全阀、管线、压力表、温度计、引压点等有无泄漏或腐蚀现象，如发现故障，应及时登记在交接班本及设备隐患登记本上，以便及时处理。

4.6 External pipeline inspection management/对外管线巡检管理

4.6.1 External pipeline inspection: At least one person is required to perform the inspection. One person is not allowed to perform routine inspection

对外管线巡检：要求有不少于 1 人进行，不允许与日常巡检同 1 人进行。

4.6.2 The content of the external pipeline inspection is to check whether the flanges of the relevant process pipelines are leaking, whether the support is firm, whether the heat insulation is intact, and whether pressure gauges and thermometers are leaking or corroded. If faulty is found, it should be registered in the handover book and the equipment hidden trouble registration book in time for prompt processing .

对外管线巡检的内容为检查相关工艺管线的各法兰是否泄漏、支撑是否牢固、伴热保温是否完好、压力表及温度计等引压点等有无泄漏或腐蚀现象，如发现故障，应及时登记在交接班本及设备隐患登记本上，以便及时处理。

4.6.3 The internal pipeline of the combined equipment is included in the scope of routine inspection. The focus of the external pipeline inspection is to inspect the external material pipeline of the combined equipment. The inspection route is shown in the list of the external

inspection pipelines below.

联合装置内部管线纳入日常巡检范围，对外管线巡检的重点是检查联合装置对外物料管线，巡检路线见下面对外巡检管线一览表。

The external pipelines list of Hydrocracking Unit

加裂装置对外管线一览表

No. 序号	Pipeline 管线		Check card position 巡检牌位置	Inspection frequency 巡检频次
	Name 名称	Pipeline No. 编号		
1	Light naphtha to isomerization Device 轻石脑油至异构化装置	100-P-022702	Three refinery re-engineering units border pipe gallery 炼油三部重整装置边界管廊	The 5th of each month is the day shift, and the red card is facing outward. The day shift is held on the 25th of each month, and the yellow card is facing outward. 每月 5 日白班，红牌朝外。
2	Heavy naphtha to re-engineering device 重石脑油至重整装置	200-P-021607		
3	Low-gas to PSA unit 低分气至 PSA 装置	150-P-014401		
4	Unconverted oil to flexible coking device 未转化油至灵活焦化装置	50-P-021304	Four coking device boundary pipe corridors for refining 炼油四部焦化装置边界管廊	
5	Sulphur sewage to steaming device 含硫污水至汽提装置	150-AW-012301	Included in the daily inspection of the boundary of the cracking device 列入加裂装置边界日常巡检	
6	Amine-rich liquid-sulfur regeneration device 富胺液至硫磺再生装置	250-MDEA-012801		
7	Waste lye to thermoelectric 废碱液至热电	50-CL-022810		
8	Unqualified heavy naphtha to tank area 不合格重石脑油至罐区	200-P-022204		
9	Heavy naphtha to tank area 重石脑油至罐区	200-P-022203		
10	Backwash edgy oil to sweep line tank 反冲洗污油至扫线罐	100-SB-011104		
11	Mixing oil to the tank area 混合污油污油至罐区	200-SB-030202		

12	Light contamination of oil to tank area 轻污油至罐区	100-SB-030103		每月 25 日白班，黄牌朝外。
13	Oily sewage to sewage treatment plant 含油污水至污水处理装置	150-OD-023101		
14	Liquefied gas to gas distribution device 液化气至气分装置	150-P-022105		
15	Low and low pressure air to the torch 低低压放空气至火炬	100-NFLL-030101		
16	High-pressure air to torch 高压放空空气至火炬	800-NFH-030102		
17	Low pressure air to torch 低压放空空气至火炬	700-NFL-030202		

LPG fractionation system pipeline inspection table

气分装置系统管线巡检表

NO.序号	Pipeline 管线		Check card position 巡检牌位置	Inspection frequency 巡检频次
	Name 名称	Pipeline No. 编号		
1	Product liquefied gas de-tank line 产品液化气去罐区线	150-P-030106		Included in the daily inspection of the gas distribution unit boundary 列入气分装置边界日常巡检
2	Unqualified liquefied gas de-tank line 不合格液化气去罐区线	200-P-010112		
3	Fine propylene de-tank line 精丙烯去罐区线	50-P-020802		
4	Isobutane de-tank line 异丁烷去罐区线	100-P-030304		
5	Fuel gas to system pipe network line 燃料气至系统管网线	100-FG-010201		

6	Put the torch gas to the system pipe network line 放火炬气至系统管网线	600-NFL-010101		
7	Condensate to thermal power station 凝结水至热电站	80-LLC-010102		

4.7 Closed-lamp thermal inspection management of Hydrogen system/临氢系统闭灯热检管理

4.7.1 Closed-lamp thermal inspection: Required to be organized by the squad leader or deputy squad leader and lead the team to perform night shifts.

闭灯热检：要求由班长或副班长组织并带队在夜班执行。

4.7.2 Switch off the device lighting, check whether the high-temperature equipment pipeline is overheated in the hydrogen area of the device, and whether the high-temperature flanges such as reactors, heating furnaces, high-pressure heat exchangers and high-pressure separators are ignited by hydrogen leakage. Record the inspection accurately in the shift book.

关闭装置照明灯，在装置临氢区域检查高温设备管线有无过热情况，反应器、加热炉、高压换热器、高压分离器等高温法兰有无泄漏氢气着火现象。在当班交接班本上准确记录检查情况。

4.8 Regulation of Inspection Time/巡检时间规定

4.8.1 Daily inspection of each post 各岗位日常巡检

4.8.1.1 Hydrocracking external operations are checked using patrol instrument once every 2 hours. After the last inspection, the next operator is notified to go out for inspection. If not notified, inspection must be continued to form a relay. Inspection personnel conduct patrol inspections strictly according to the time specified by on-site patrol stations. In case of production emergencies and management personnel's work arrangements which affect the normal patrol inspection, the monitor shall arrange other personnel to continue patrol inspection to ensure that the patrol inspection is completed, which must be explained in detailed in MES afterwards.

加氢裂化外操每2小时使用巡检仪点检一次，当班外操上一次的巡检结束后，并通知下一次的操作员出去巡检，如通知不到，必须继续巡检，形成接力式巡检。巡检人员严格按照现场巡检站规定时间进行巡检，凡遇上生产突发事件、管理人员的工作安排而影响正常巡检，由班长安排其他人员继续巡检，确保巡检完成，事后必须在MES上详细说明。

4.8.1.2 The squad leader patrols 2 times per shift, Day shift 8:45-14:45, 14:45-20:45; Night shift 20:45-02:45、02:45-8:45, according to the inspection routes.

班长每班巡检2次，白班8:45-14:45时、14:45-20:45时；夜班20:45-02:45时、02:45-8:45时按巡检路线巡检。

4.8.1.3 In order to truly implement the pre-inspection system for production posts and give full play to the role of pre-inspection, the succession team is required 15 minutes in advance for pre-inspection. The on-site pre-inspection before shift mainly inspects the operation of large units, key parameters, pumps, heating furnaces, etc. The general control pre-inspection mainly carries out pre-inspection of DCS parameters, interlocking system and equipment operation, product quality analysis, etc. of the last shift.

为了使生产岗位真正落实预检制度,充分发挥预检的作用,接班要求提前 20 分钟到岗进行预检。班前现场预检主要对装置大机组、关键参数、机泵、加热炉等运行情况进行检查,总控预检主要对上个班的 DCS 参数、联锁系统及设备运行情况、产品质量分析等进行预检。

4.8.2 Inspection of high-level equipment/装置高位巡检

4.8.2.1 10th and 25th of each month white class inspection cracking, gas separation device high-altitude parts once (C301 conducts high-point inspections in January, April, July, and October), It is required that the single-month inspection card is red outward, and the double moon is yellow outward, with the consent of the Vice Minister of Technology, it may be appropriately adjusted and indicated on the shift.

每月 10 日白班检查加裂装置高空部位一次, 25 日白班检查气分装置高空部位一次 (C301 在 1 月、4 月、7 月、10 月进行高点巡检), 要求单月巡检牌红色朝外, 双月黄色朝外; 高空部位巡检情况要在班长交接班记录中体现。特殊情况下, 经工艺副部长同意后, 可适当调整, 并在交接班本上注明。

4.8.2.2 High-level inspection table 高位巡检表

High position inspection table for hydrocracking unit(including LPG separation unit) 加氢裂化(含气分)装置高位巡检表							
High point No. 高点编号	High point1 高点 1	High point2 高点 2	High point3 高点 3	High point4 高点 4	High point5 高点 5	High point6 高点 6	High point7 高点 7
The specific location 具体位置	F101 top platform F101 顶部平台	R101/2 top platform R101/2 顶部平台	C101/2 top platform (cracking) C101/2 顶部平台(加裂)	C101/2 top platform (cracking) C201/2 顶部平台(加裂)	C204 top platform (cracking) C204 顶部平台	C205 top platform C205 顶部平台	C206/7 top platform C206/7 顶部平台
Inspection frequency 巡检频次	10th of every month 每月 10 日白班						
High point No. 高点编号	High point8 高点 8		High point9 高点 9		High point10 高点 10		High point11 高点 11
The specific location 具体位置	C101/2 top platform C101/2 顶部平台(气分)		C201/2 top platform C201/2 顶部平台(气分)		C203/4 top platform C203/4 顶部平台(气分)		C301 top platform C301 顶部平台(气分)

Inspection frequency 巡检频次	25th of every month (C301 conducts high-point inspections in January, April, July, and October) 每月 25 日白班 (C301 在 1 月、4 月、7 月、10 月进行高点巡检)
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4.8.3 External pipeline inspection management/对外管线巡检管理

The pipeline inspection of the cracking gas separation device system has two inspection plates, which are set up under the boundary corridor of the three continuous recombinator units of the refining plant, under the boundary corridor of the four flexible coking devices of the refining system. On the 5th and 25th of each month, the system pipeline is inspected once during the day shift, and the inspection sign is required to be red outward on the 5th and yellow outward on the 25th, and the system pipeline inspection situation should be reflected in the shift handover record of the squad leader.

加裂气分装置系统管线巡检共设 2 个巡检牌，分别设置于炼油三部连续重整装置边界管廊下方、炼油四部灵活焦化装置边界管廊下方。每月 5 日和 25 日白班检查系统管线一次，要求 5 日巡检牌红色朝外，25 日黄色朝外，系统管线检查情况要在班长交接班记录中体现。

4.8.4 Closed-lamp thermal inspection management of Hydrogen system/临氢系统闭灯热检管理

The closed-lamp inspection is to be conducted every Monday night from 21:30 to 00:00. If the production is abnormal, the inspection can be postponed until it is back to normal. In order to achieve the inspection effect, the Hydrotreating unit should be checked as well during the closed-lamp thermal inspection.

每周一夜班的 21:30-00:00 开展闭灯检查，如生产异常时，可推迟检查，待正常后补做。为达到检查效果，闭灯热检时联系加氢精制装置同时检查。

4.9 Field and Panel Operating Parameter Comparison/内外操参数对比

Hydrogen Cracking Unit Key Process Parameter Checklist 加氢裂化装置关键工艺参数核对表			
Checker 核对人:		Date 日期: 年 月 日 时间:	
Check Item 检查项目	DCS Reading DCS 读数	Field Reading 现场读数	Test Result 检查结果
D102 Level 液位 (%)			
D103 Level 液位 (%)			
D106 Level 液位 (%)			
D106 Level 界位 (%)			
D106 Pressure 压力 (MPa)			
D107 Level 液位 (%)			

Hydrocracking & LPG Fractionation Unit Routine

Inspection Implementation Details

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D107 Level 界位 (%)			
C101 Level 液位 (%)			
D110 Level 液位 (%)			
D105 Level 液位 (%)			
K101 rotation speed 转速 (RPM)			
K101 Lubricating Oil Pump Outlet Pressure 润滑油泵出口压力(MPa)			
K102A Outlet Pressure 出口压力 (MPa)			
K102A Outlet Temperature 出口温度 (°C)			
K102A Lubricating Oil Pump Outlet Pressure 润滑油泵出口压力(MPa)			
K102B Outlet Pressure 出口压力(MPa)			
K102B Outlet Temperature 出口温度(°C)			
K102B Lubricating Oil Pump Outlet Pressure 润滑油泵出口压力(MPa)			
K102C Outlet Pressure 出口压力(MPa)			
K102C Outlet Temperature 出口温度 (°C)			
K102C Lubricating Oil Pump Outlet Pressure 润滑油泵出口压力(MPa)			

4.10 Inspection Content/巡回检查内容

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #1 Field Operator
Patrol Inspection Point: LPG Fractionation Second Series Station

炼油二部-加氢裂化及气分装置 1#外操巡检点：气分二系列站

Patrol Inspection Time 巡检时间: 08:45 10:45 12:45 14:45 16:45 18:45 20:45 22:45 00:45 02:45
04:45 06:45

Patrol Inspection Contents 巡检内容:

1. The pressure and liquid (interface) level of each column and vessel of the LPG fractionation second series;
气分二系列各塔及容器的压力、液（界）位情况；
2. R201AB, R202AB, DR201AB and SR201AB pressure, inlet and outlet pressure difference, static sealing point intact;
R201AB、R202AB、DR201AB 和 SR201AB 的压力，进出口压差，静密封点完好情况；
3. The operation of each heat exchanger of the LPG fractionation second series;
气分二系列各换热器的运行情况；
4. Valve position and operation of all instruments.

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #2 Field Operator
Patrol Inspection Point: LPG Fractionation Air Cooling Platform Station

炼油二部-加氢裂化及气分装置 2#外操巡检点：气分空冷平台站

Patrol Inspection Time 巡检时间: 08:55 10:55 12:55 14:55 16:55 18:55 20:55 22:55 00:55 02:55
04:55 06:55

Patrol Inspection Contents 巡检内容:

1. The operation status of each air-cooler motor, the belt transmission is good, and there is no abnormal situation such as peeling and out of track, and the lubrication condition is good;
各空冷电机运行状况，皮带传送良好无起皮、跑轨等异常状况，润滑状况良好；
2. The liquid level of each air-cooler water tank is normal and the operation of the pipeline pump;
各空冷水箱液位正常，管道泵运行状况；
3. Check whether there are any leaks in the air-cooler plugs and tube bundles, whether there are any abnormal leaks in each discharge line, and check the operation of the safety valves at the top of each column.
各空冷堵头、管束有无泄漏，各排放线有无异常泄漏，检查各塔顶安全阀运行情况。

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #3 Field Operator
Patrol Inspection Point: LPG Fractionation First Series Station

炼油二部-加氢裂化及气分装置 3#外操巡检点：气分一系列站

Patrol Inspection Time 巡检时间: 09:05 11:05 13:05 15:05 17:05 19:05 21:05 23:05 01:05 03:05
05:05 07:05

Patrol Inspection Contents 巡检内容:

1. Pressure and liquid boundary conditions of each tower and container;
各塔及容器的压力、液界位情况；
2. The inlet and outlet differential pressure of SR301AB, the differential pressure of coalescer D302 and the condition of static sealing point;
SR301AB 的进出口差压，聚结器 D302 差压以及静密封点完好情况；
3. Operation of each heat exchanger and water cooler;
各换热器、水冷器的运行情况；

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #4 Field Operator
Patrol Inspection Point: LPG Fractionation Pump Station

炼油二部-加氢裂化及气分装置 4#外操巡检点：气分机泵区域站

Patrol Inspection Time 巡检时间: 09:15 11:15 13:15 15:15 17:15 19:15 21:15 23:15 01:15 03:15
05:15 07:15

Patrol Inspection Contents 巡检内容:

1. Check whether the air drum D402 contains water, and whether D403 dewatering is normal;
风罐 D402 有无带水，D403 疏水是否正常；
2. The operation of each running pump, dry gas sealing operation;
各运行机泵运行情况，干气密封运行情况；
3. The condition of the spare pump and the oil level;
备用泵的盘车、油位情况；
4. The position and operation of all the instruments in the pipe rack.
主管廊区所有仪表的阀位、运行情况。

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #5 Field Operator
Patrol Inspection Point: Hydrocracking Feed and Pump Second Station

炼油二部-加氢裂化及气分装置 5#外操巡检点：加裂原料及机泵二区站

Patrol Inspection Time 巡检时间: 09:25 11:25 13:25 15:25 17:25 19:25 21:25 23:25 01:25 03:25
05:25 07:25

Patrol Inspection Contents 巡检内容:

1. Check whether the liquid (interface) level, pressure and DCS of each vessel are consistent, and whether there is leakage;
检查并核对各容器液（界）位、压力与DCS是否保持一致，是否存在泄漏；
2. Check the operation of each pump;
检查各机泵运行情况；
3. Standby pump and lubrication, etc.;

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #6 Field Operator
Patrol Inspection Point: Hydrocracking Fractionation Second Area (South) and Utilities Station

炼油二部-加氢裂化及气分装置 6#外操巡检点：加裂分馏二区（南）及公用工程区站

Patrol Inspection Time 巡检时间: 09:35 11:35 13:35 15:35 17:35 19:35 21:35 23:35 01:35 03:35
05:35 07:35

Patrol Inspection Contents 巡检内容:

1. Check the position and pressure of each column and vessel liquid (interface) level, and whether the DCS is consistent and any leakage at each sealing point;
检查并核对各塔器及容器液（界）位、压力与是否 DCS 保持一致，各密封点是否存在泄漏；
2. Check the operation of each pump, whether the pump pressure, motor current, lubrication and sealing are normal, and whether the pump cooling water is normal;
检查各机泵运行情况，机泵压力、电机电流、润滑及密封是否正常，机泵冷却水是否正常；
3. Check the inlet and outlet of each heat exchanger and any leakage in the large cover.
检查各换热器进出口及大盖是否存在泄漏情况

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #7 Field Operator
Patrol Inspection Point: Hydrocracking Air Cooling Platform Station

炼油二部-加氢裂化及气分装置 7#外操巡检点：加裂空冷平台站

Patrol Inspection Time 巡检时间: 09:45 11:45 13:45 15:45 17:45 19:45 21:45 23:45 01:45 03:45
05:45 07:45

Patrol Inspection Contents 巡检内容:

1. Check the operation status of each air-cooler motor;
检查各空冷电机运行状况；
2. Check the liquid level of each wet air-cooler water tank and the running condition of the pipeline pump;
检查各湿式空冷水箱液位正常，管道泵运行状况；
3. Check whether there are any leaks in the air-cooler plugs and tube bundles, and check

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #8 Field Operator
Patrol Inspection Point: Water injection, Fractionation and Pump First Area Station

炼油二部-加氢裂化及气分装置 8#外操巡检点：注水、分馏及机泵一区站

Patrol Inspection Time 巡检时间: 09:55 11:55 13:55 15:55 17:55 19:55 21:55 23:55 01:55 03:55
05:55 07:55

Patrol Inspection Contents 巡检内容:

1. Pressure and liquid level of each column and vessel;
各塔、容器的压力、液位情况;
2. The operation of each operating pump;
各运行泵运行情况;
3. The rotating and oil level of the spare pump;
备用泵的盘车、油位;
4. The operation of EH201 and E218;
EH201、E218 的运行情况
5. Valve position and operation of all instruments;
所有仪表的阀位、运行情况;
6. Leakage condition of each heat exchanger tube and shell side inlet and outlet flange.
各换热器管、壳程出入法兰泄漏状况

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #9 Field Operator
Patrol Inspection Point: Desulfurization Amine Liquid Area Station

炼油二部-加氢裂化及气分装置 9#外操巡检点：脱硫胺液区域站

Patrol Inspection Time 巡检时间: 10:05 12:05 14:05 16:05 18:05 20:05 22:05 00:05 02:05 04:05
06:05 08:05

Patrol Inspection Contents 巡检内容:

1. Pressure and liquid level of C101, C102, D108, D109 and D311;
C101、C102、D108、D109、D311 的压力、液位情况;
2. The operation of P104A/B, the operation of oil circuit and cooling water;

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #10 Field Operator
Patrol Inspection Point: Compressor First Level Station

炼油二部-加氢裂化及气分装置 10#外操巡检点：压缩机一层区域站

Patrol Inspection Time 巡检时间: 10:15 12:15 14:15 16:15 18:15 20:15 22:15 00:15 02:15 04:15
06:15 08:15

Patrol Inspection Contents 巡检内容:

1. Check the operation of the interstage coolers;
检查各级间冷却器的运行情况;
2. Check the operation of the makeup hydrogen operating unit, the standby compressor's lube oil station, each motor oil station, softened water station, whether the pressure is normal, whether there is leakage, etc.;
检查新氢机运行机组、备用机的润滑油站、各电机油站、软化水站情况，各压力是否正常，是否存在泄漏等;
3. Check the condition of K101 lube oil station and steam seal system, whether the pressure is normal, whether there is leakage.
检查 K101 润环油站、汽封系统情况，各压力是否正常，是否存在泄漏等。

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #11 Field Operator
Patrol Inspection Point: Compressor Second Floor Area Station

炼油二部-加氢裂化及气分装置 11#外操巡检点：压缩机二层区域站

Patrol Inspection Time 巡检时间: 10:25 12:25 14:25 16:25 18:25 20:25 22:25 00:25 02:25 04:25
06:25 08:25

Patrol Inspection Contents 巡检内容:

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #12 Field Operator
Patrol Inspection Point: Furnace, Reaction and High Pressure Area Station

炼油二部-加氢裂化及气分装置 12#外操巡检点：炉反及高压区域站

Patrol Inspection Time 巡检时间: 10:35 12:35 14:35 16:35 18:35 20:35 22:35 00:35 02:35 04:35
06:35 08:35

Patrol Inspection Contents 巡检内容:

1. The pressure and liquid level of D303 and the PD of the flame arrester; Operation of K801A/B and K802;
D303 压力、液位情况，阻火器压差情况： K801A/B、K802 的运行情况；
2. The operating condition of the heating furnace F101;
加热炉 F101 运行状况；
3. R101, R102 inlet and outlet pressure, operation of inlet and outlet flanges; operation of quench hydrogen of R101 and R102; Operation of high pressure heat exchanger;
R101、R102 出入口压力，出入口法兰运行状况； R101、R102 各冷氢阀的运行情况； 高压换热器运行情况；
4. D103, D104 pressure, liquid level.
D103、D104 的压力、液位情况。

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #1 Monitor
Patrol Inspection Point: Furnace, Reaction and High Pressure Area

炼油二部-加氢裂化及气分装置 1#班长巡检点：炉反及高压区域

Patrol Inspection Time 巡检时间: 8:45 14:45 20:45 2:45

Patrol Inspection Contents 巡检内容:

1. Reactor and high exchange equipment static cooling point operation;

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #2 Monitor
Patrol Inspection Point: Water injection and Fractionation, Pump First Area

炼油二部-加氢裂化及气分装置 2#班长巡检点：注水及分馏、机泵一区

Patrol Inspection Time 巡检时间: 8:45 14:45 20:45 2:45

Patrol Inspection Contents 巡检内容:

1. Check the cold high pressure and cold low pressure separator liquid interface;
冷高分及冷低分液界面核对;
2. The operation of P103;
P103 运行情况;
3. Check the liquid level of each column and vessel;
各塔及容器液面核对;
4. The operation of the pump at the pipe corridor area.
管廊区机泵运行情况。

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #3 Monitor
Patrol Inspection Point: Desulfurization and Amine Liquid Area

炼油二部-加氢裂化及气分装置 3#班长巡检点： 脱硫及胺液区

Patrol Inspection Time 巡检时间: 8:45 14:45 20:45 2:45

Patrol Inspection Contents 巡检内容:

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #4 Monitor
Patrol Inspection Point: : Compressor Second Floor Area

炼油二部-加氢裂化及气分装置 4#班长巡检点：压缩机二层区域

Patrol Inspection Time 巡检时间: 8:45 14:45 20:45 2:45

Patrol Inspection Contents 巡检内容:

1. Check the operation of the cooler between the levels;
检查各级间冷却器运行情况;
2. Check the operation of softened water station and oil station;
检查软化水站、油站运行情况;
3. Check the operation of K102 and K101;
检查 K102、K101 运行情况;
4. Check the pressure of medium pressure steam, low pressure steam;
检查中压蒸汽、低低压蒸汽疏水情况;
5. Check D111, D110 and liquid level of the liquid separation tank between the levels.
检查 D111、D110 及各级间分液罐液面情况。

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #5 Monitor
Patrol InspectionPoint: : Utilities Area and Fractionation Second Area

炼油二部-加氢裂化及气分装置 5#班长巡检点：公用工程区及分馏二区

Patrol Inspection Time 巡检时间 8:45 14:45 20:45 2:45

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #6 Monitor
Patrol Inspection Point: : Hydrocracking Feed and Pump Second Area

炼油二部-加氢裂化及气分装置 6#班长巡检点：加裂原料及机泵二区

Patrol Inspection Time 巡检时间: 8:45 14:45 20:45 2:45

Patrol Inspection Contents 巡检内容:

1. The operation of the backwash filter SR101;
反冲洗过滤器 SR101 运行情况;
2. 1040-P-102 pump operation;
1040-P-102 机泵运行情况;
3. High and low pressure venting drum liquid interface level;
高低压放空罐液界面;
4. Check the liquid level of D-101 and D-102.
核对 D-101,D-102 的液位。

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #2 Monitor
Patrol Inspection Point:: LPG Fractionation Unit SS-1

炼油二部-加氢裂化及气分装置 7#班长巡检点：气分装置 SS-1

No.2 Refinery Dept Hydrocracking and LPG Fractionation Unit #1Monitor
Patrol Inspection Point: LPG Fractionation Unit SS-2

炼油二部-加氢裂化及气分装置 8#班长巡检点：气分装置 SS-2

Patrol Inspection Time 巡检时间: 8:45 14:45 20:45 2:45

Patrol Inspection Contents 巡检内容:

1. Check the column and vessel liquid interface level;
检查各塔、容器液界面
2. Check the operation of each heat exchanger, air cooling fan and pump;
检查各塔、容器液界面
3. Check whether there is abnormal leakage in battery limit pipeline.
检查界区管线有无异常泄漏。

5 Inspection and Assessment/检查与考核

5.1 The on-duty cadres and department manager shall conduct daily inspection and assessment on the safety circuit inspection. For the failure to carry out the inspection responsibility seriously, the appraisal shall be conducted according to the regulations of two-part economic responsibility system for refining; For those who seriously in time carry out the

inspection duty and deal with problems, the department or branch shall reward them according to relevant regulations.

值班干部及部门管理人员对安全巡回检查情况进行日常检查、考核。对于未能认真执行巡检责任，按炼油二部经济责任制考核条例进行考核；对于认真执行巡检职责，及时发现、处理问题的，按有关规定分别由部门或分公司给予奖励。

5.2 Refinery zone 2 shall organize the inspection of the routine inspection on the site of the plant, no less than twice a month. The inspection shall be carried out according to the economic responsibility system.

炼油二部组织对装置现场全时程巡检情况进行检查，每月不少于两次。对查出问题按经济责任制考核。

5.3 The department supervisor shall supervise and inspect the equipment inspection.

Special areas: areas where hazardous chemicals may leak, confined spaces, cross working areas, high points, border areas, etc.

部门主管领导对装置巡检情况进行监督检查考核。

特殊区域：指危化品有可能泄露造成危害的区域、受限空间、交叉作业区域以及装置高点、边远区域等。

5.4 Reporting and processing: refinery zone 2 sets out the reporting and processing procedures, and report in time and deal with the problems found in the inspection. Set up a routine problem or potential risk registration record. Record "problems", "corrective implementation" and "implementation person".

联系汇报及处理：炼油二部制定出联系汇报及处理程序，对在巡检中发现的问题，按要求及时汇报、处理。设立巡检问题或隐患登记记录。记录发现“问题”、“整改落实情况”、“落实人”。

6 Additional Remarks/附则

6.1 These rules should be administered by the planning and scheduling department.

6.1 本细则由计划调度部归口管理。

6.2 The drafting department of these rules: refining zone 2.

6.2 本细则起草部门：炼油二部。

6.3 The power of interpretation of these rules belongs to the planning and scheduling department.

6.3 本细则解释权归计划调度部拥有。

6.4 The compilation and approval of the version of these rules are shown in table 1:

6.4 本细则版本编制和审批情况见表 1:

表 1 文件版本编制和审批情况

5	2025-01-01	Sun Weifeng 孙伟锋	Yang Fan 杨帆	Sun Jian Huai 孙建怀
Version 版本	Issued Date 颁布日期	Compiler 编制人	Reviewer 审核人	Approval 批准人