

## 恒逸各部门紧急停工加裂气分装置应急预案

事故发生第一时间联系调度、部门值班领导，做好信息传递沟通，及时掌握各装置情况并作出反应，做好装置进、出物料改线工作。

| 部门 | 描述    | 停工后现象  | 主要影响  | 紧急处置方案  |                                |
|----|-------|--|---|---|--------------------------------|
|    |       |  |   | 加裂  | 气分                             |
| 一部 | 常减压装置 | 1. 减压直供蜡油瞬间中断，流量计报警，直供蜡油控制阀全开；<br>2. 加裂 D101 液位快速下降，D102 进料可能中断。 | 1. 减压蜡油直供料中断，调整不及时，反应进料泵因 D102 液位低低联锁停泵，进料中断；<br>2. 罐供料及时补上，油温较低，加热炉提负荷，反应深度波动，影响分馏系统；<br>3. 反应短时间大幅度降量，造成系统压力超高或床层温度调整不及时造成飞温事故。 | 1. 联系罐区，减压蜡油全部改罐供，罐供及时补上，则根据氢气管网调整负荷，氢气过剩，联系调度放火炬。<br>2. 系统先做降温降量处理，30min 内罐供料未补上，D101 液位过低 P101 小流量循环，提高循环油量等待罐供料恢复，稍降或保持 R101 各床层入口温度，及时降低 R102 各床层温度，注意降温速度、系统压力、高分液位、防止法兰泄漏，分馏系统及时调整，注意产品质量，不合格改不合格线； | 1. I 系列降量生产，及时调整进料量，进料温度，底部热源。 |

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|    | 轻烃回收装置  | <ol style="list-style-type: none"> <li>1. 气分 I 系列轻烃回收液化气瞬间中断, D101 液位快速下降;</li> <li>2. II 系列碱洗后焦化液化气瞬间中断</li> </ol> | <ol style="list-style-type: none"> <li>1. I 系列原料大幅减少, 进料泵调整不及时造成 P101 抽空, 一系列波动大;</li> <li>2. II 系列进料中断。</li> </ol> | <ol style="list-style-type: none"> <li>1. 注意燃料气管网压力, 及时调整 F101。</li> </ol>   | <ol style="list-style-type: none"> <li>1. 轻烃回收液化气界区改至不合格线, 降低 P101 出口流量, 注意 C101 进料温度、塔底热源、各塔、回流罐、压力, 及时调整;</li> <li>2. II 系列进料中断, 停二系列进料, 原料界区改至不合格液化气, 及时停止各塔罐外送, 精丙烯出装关一道界区阀 C201、C202、C203-C204 单塔循环, 其他各控制阀视内漏情况关一道手阀。</li> </ol> |
| 三部 | 重整装置    | <ol style="list-style-type: none"> <li>1. 新氢量快速下降至中断;</li> <li>2. 重整压缩机停车, 低低压蒸汽管网压力波动大</li> </ol>                  | <ol style="list-style-type: none"> <li>1. K101 背压蒸汽压力低低联锁停车, 反应启动紧急泄压;</li> <li>2. 新氢中断, 反应紧急降温降量停工。</li> </ol>     | <ol style="list-style-type: none"> <li>1. 重整紧急停车, 旁路 K101 背压蒸汽联锁, 尽可能保证 K101 运行;</li> <li>2. 氢气全部中断, 紧急拍停 K102, 反应紧急降温降量转至新氢中断工况; 切断新鲜原料, 反应分馏建立长循环, 分馏按新氢中断处理。</li> </ol> | <ol style="list-style-type: none"> <li>1. I 系列跟随系统液化气情况及时调整负荷或紧急停工, 做好各塔单塔循环</li> <li>2. II 系列视焦化装置情况而定, 最低按进料中断处置。</li> </ol>   |
|    | 轻石异构化装置 | <ol style="list-style-type: none"> <li>1. 轻石至异构化流量大幅波动</li> </ol>   | <ol style="list-style-type: none"> <li>1. 轻石至异构化改线, 若合格与不合格罐容不够, 加裂降量配合</li> </ol>                                  | <ol style="list-style-type: none"> <li>1. 视异构化装置情况做出适当的配合处置。</li> </ol>  | <ol style="list-style-type: none"> <li>1. 视加裂液化气量调整加工负荷。</li> </ol>  |

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|    | PSA 装置 | 1. 新氢量快速下降至中断;<br>2. 燃料气管网大幅度波动                   | 1. 新氢中断, 加裂紧急降温降量至新氢中断工况;<br>2. 解析气压缩机停机, 燃料气管网压力快速下降。                                   | 1. 氢气全部中断, 紧急拍停 K102, 反应紧急降温降量转至新氢中断工况; 切断新鲜原料, 反应分馏建立长循环, 分馏按新氢中断处理。<br>2. 燃料气管网压力下降, 若 PSA 停车, 加裂紧急停车, 则视燃料气管网压力情况, 及时关闭主火嘴, 保留部分长明灯。 | 1. 视燃料气管网压力情况, 及时开大 C102 顶压控阀甚至其他各塔压控阀, 为燃料气管网恢复争取时间;<br>2. 加裂停工, 一系列大量液化气中断, 视原料情况调整。 |
|    | 预加氢装置  | 1. 新氢量快速下降, 氢气管网压力开始下降, K102 各级出口压力下降, 反应系统压力快速下降 | 1. 若未成功启动罐供精制石脑油泵, 重整负荷迅速下降, 产氢迅速降低, 加裂退氢气, 降温降量。<br>2. 若顺利启动精制石脑油泵, 重整负荷降低较少, 氢气管网压力下降。 | 1. 预加氢停工, 精制石脑油泵启动较慢, 视氢气管网压力, 向氢气系统退氢气, 降温降量, 优先保住氢气管网;<br>2. 预加氢停工, 精制石脑油泵启动较快, 重整产氢恢复根据氢气系统情况及时调整负荷。                                 | 1. 视原料情况及时调整进料负荷, 若进料中断, 原料及时改至不合格线, 装置内单塔循环。  |
|    | 芳烃联合   | 1. 低低压蒸汽管网压力波动;<br>2. 气分热水温度大幅度波动, 各塔操作紊乱。        | 1. K101 背压蒸汽压力波动大<br>2. 气分装置操作出现大幅度波动  | 1. 及时旁路 K101 背压蒸汽联锁, 关注燃料气管网压力情况  | 1. 联系公用工程及时投用热水加热器;<br>2. 根据各热用户点操作情况及时快速调整热水用量  |
| 四部 | 灵活焦化   | 1. 低低压蒸汽管网压力波动;<br>2. 燃料气管网大幅度波动                  | 1. K101 背压蒸汽压力低低联锁停车, 反应启动紧急泄压;<br>2. , 灵活气快速减少, 燃料气管网压力快速下降。                            | 1. 旁路 K101 背压蒸汽联锁, 尽可能保证 K101 运行;<br>2. 必要时旁路 F101 主火嘴压力联锁  | 1. 视燃料气管网压力情况, 及时开大 C102 顶压控阀甚至其他各塔压控阀, 为燃料气管网恢复争取时间;<br>2. II 系列按进料中断处理。              |

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|    | 硫磺回收 | 1. 贫胺液系统波动, 胺液可能中断 | 1. 循环氢、低分气、燃料气与液化气无法脱硫                       | <p>1.若贫胺液部分中断, 优先保证C206 液化气脱硫、其次低分气脱硫和干气脱硫, P104 用小流量循环, 关闭进 C101 控制阀、切断阀, 开大排废氢, 关注循环机蒸汽用量;</p> <p>2. 若全部中断, 及时停运或短时间使用最小流量线维持, 将低分气、干气改火炬, 液化气改不合格, 排废氢至低分气;</p> <p>3. 关注硫磺酸性水罐罐容, 若长时间无法恢复, 听从调度统一指令。</p> | 1. 视原料情况及时调整进料负荷, 若进料中断, 原料及时改至不合格线, 装置内单塔循环。 |
| 港储 |      | 罐供料中断              | 1.罐供减压蜡油中断, 装置进料性质波动, 总体变轻, 反应床层温度波动         | 1.最大化改直供减压蜡油, 装置降温降量生产, 联系罐区启动备用泵。   | 1. 视加裂液化气量调整加工负荷。                             |
|    |      |                    | 1.罐供焦化蜡油中断, 装置进料性质波动, 总体变轻, 反应床层温度波动         | 1.提高罐供直馏蜡油量, 视情况调整负荷, 联系罐区启动备用泵。   | 1. 视加裂液化气量调整加工负荷。                             |
|    |      |                    | 1.罐供直馏柴油, 装置进料性质波动, 总体变重, 反应床层温度波动; 密封冲洗柴油中断 | 1.提高罐供直馏蜡油量, 视情况调整负荷, 注意反冲洗过滤器运行情况, 联系罐区启动备用泵。若 D310 液位低低, 停 P211。   | 1. 视加裂液化气量调整加工负荷。                             |
|    |      |                    | 1.焦化柴油中断, 装置进料性质波动, 总体变重, 反应床层温度波动           | 1.提高罐供直馏蜡油量, 视情况调整负荷, 注意反冲洗过滤器运行情况, 联系罐区启动备用泵。   | 1. 视加裂液化气量调整加工负荷。                             |

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| 热电 |  | 3.5MPa 蒸汽大量减少或中断; | <p>1.汽轮机转速不足, 循环氢量大量减少, 反应床层温度失控升高导致飞温事故;</p> <p>2.汽轮机背压蒸汽压力低低联锁停车, 装置紧急停工。</p>   | <p>1. 蒸汽大量减少, 旁路背压蒸汽压力联锁, 循环氢量不足, 减少加热炉入口循环氢量 (注意 26400Nm<sup>3</sup>/h 联锁值), 降低燃料气用量, 控制好加热炉出口温度, 尽可能保证冷氢量, 反应降温降量处理。</p> <p>2. 蒸汽中断, 立即启动 0.7MPa/min 紧急泄压、拍停 K101, 关注床层温度, 若温度反弹明显且较快, 立即启动 2.1MPa/min 紧急泄压, 装置按 3.5MPa 蒸汽中断处理。</p> | <p>1. 视加裂液化气量调整加工负荷。</p>                                    |
|    |  | 装置停电              | <p>1. 动设备、电加热设备停止运行, K101 停运</p>  | <p>1. K101 润滑油压力低低停运, 立即启动 0.7MPa/min 紧急泄压, 关注床层温度, 若温度反弹明显且较快, 立即启动 2.1MPa/min 紧急泄压, 装置按停电事故预案处理</p>   | <p>1.切断进出料, 热源, 各塔保压保温保液位</p>                               |
|    |  | 除盐水中断             | <p>1. 湿式空冷水箱液位快速下降, 空冷出口温度快速升高;</p> <p>2. C201、C204、C205、C207 顶压快速升高, 各塔操作紊乱;</p> <p>3. P105、P203、P206 密封冲洗除盐水中断, 改成 11 方案。</p> | <p>1. 若仅是除盐水中断, 则将除盐水改至生产水, 关注带除盐水冲洗的机泵的机封运行状态;</p> <p>2. 若热电停工, 则按紧急停工处理, 停电或中压蒸汽 中断处理。</p>  | <p>1. 若仅是除盐水中断, 则将除盐水改至生产水</p> <p>2. 若热电停工, 则按停电事故预案处理。</p> |

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| 公用工程 | 仪表风中断       | <ol style="list-style-type: none"> <li>1. 界区仪表风压力报警，压力降低至控制阀需求压力之下，阀门自动转至安全状态；</li> <li>2. 0.7MPa/min 紧急泄压阀自动打开，装置紧急停工</li> </ol> | <ol style="list-style-type: none"> <li>1. 事故之初，先快速降低反应深度和进料量，为停工做准备，确认 30 分钟内仪表风无法恢复，按仪表风中断事故处置</li> </ol>   | <ol style="list-style-type: none"> <li>1. 事故之初，先快速降低进料量，为停工做准备，确认 30 分钟内仪表风无法恢复，按仪表风中断事故处置，各塔保温保压。</li> </ol> |
|      | 0.6MPa 氮气中断 | <ol style="list-style-type: none"> <li>1. D102 压控无气源，可能造成 D102 设备损坏；</li> <li>2. K101 隔离氮、二次气中断，K102 中体、刮油环、主填料 氮气中断。</li> </ol>  | <ol style="list-style-type: none"> <li>1. 关注 D102 压力、液位变化情况，若压力下降较快，手动全关排气阀，拉高液位，若无法缓解，做紧急停工处理，</li> <li>2. 确认 0.6MPa 氮气将完全中断，停运 K102、K101，装置做紧急停工处理。</li> </ol> | <ol style="list-style-type: none"> <li>1. 视加裂液化气量调整加工负荷。</li> </ol>   |
|      | 2.5MPa 氮气中断 | <ol style="list-style-type: none"> <li>1. 界区 2.5MPa 氮气压力报警</li> </ol>   | <ol style="list-style-type: none"> <li>1. 若仅是 2.5MPa 氮气中断，而仪表风、0.6MPa 氮气未中断，则稳定操作，等待恢复</li> <li>2. 若仪表风、0.6MPa 氮气中断，则装置按上述方向处置。</li> </ol>                       | <ol style="list-style-type: none"> <li>1. 视加裂液化气量调整加工负荷。</li> </ol>   |
|      | 循环水中断       | <ol style="list-style-type: none"> <li>1. 各水冷器出口温度瞬间升高</li> <li>2. 新氢压缩机出口温度高高联锁</li> <li>3. 循环机润滑油温度快速升高、轴封蒸汽抽汽器正压</li> </ol>    | <ol style="list-style-type: none"> <li>1. 装置按循环水中断事故预案处置；</li> <li>2. 紧急启动低速泄压，尽可能维持循环机运行，轴封蒸汽改现场排放</li> </ol>   | <ol style="list-style-type: none"> <li>1. 按紧急停工处置，停止进出物料，保温保压。</li> </ol>                                     |

## Emergency plans for Hydrocracking and LPG Fractionation Units if other departments shutdown

When an accident occurs, contact the dispatcher and the department leader on duty, do a good job of information transmission and communication. Grasp the situation of each unit and respond to it timely. And prepare to change the line of materials in and out of the device.

| Departments      | Description                              | Phenomenon<br>after the<br>shutdown   | Main influence   | Emergency treatment plan   |  |
|------------------|--|---|--|--|--|
|                  |  |   |  | Hydrocracking  | LPG Fractionation  |
| Refinery Dept. 1 | Atmospheric and Vacuum Distillation Unit | <p>1. The VGO from Refining dept. 1 is interrupted, the flowmeter alarms, and the direct supply VGO control valve is fully opened;</p> <p>2. The liquid level of the D101 drops rapidly, and the feed of D102 may be interrupted.</p> | <p>1. If VGO from Refining dept 1 is interrupted, and if the adjustment is not timely, the reaction feed pump will shutdown due to the low low level of D102, and the reaction feed will be interrupted.</p> <p>2. If the VGO from tank can be filled in time, the oil temperature will drop. The load of the heating furnace would be increased. The reaction depth will fluctuate greatly and affect the fractionation system.</p> | <p>1. Contact Storage that all the VGO used will be changed to tank supply. If the tank can supply in time, adjust the feed load according to the make up gas pressure. If there is excess hydrogen, contact the dispatcher to vent to flare.</p> <p>2. Firstly, decrease the R102 temperature and decrease the feed flowrate. If the tank supply is not sufficiently provided within 30 minutes and D101 liquid level is too low, keep P101 running with minimum flow cycle. Increase the recycle oil flowrate and wait for the tank supply to recover. Slightly reduce or maintain the inlet</p> | <p>1. Series I low load production: Timely adjust the feed volume, feed temperature, bottom heat source.</p> |

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|  |                                       |  | <p>3. The large reduction of feed during this short time may cause the system pressure to be excessively high, or, when the bed temperature is not adjusted in time, it may cause temperature excursions.</p> | <p>temperature of each bed of R101. Timely reduce the temperature of each bed of R102, pay attention to the cooling speed, system pressure, D103 and D106 liquid level and prevent flange leakage. Also, timely adjust the fractionation system; pay attention to product quality, and change unqualified products to the unqualified line;</p> |   |
|  | <p>Light Ends Recovery (LER) Unit</p> | <p>1. The series I feed from LER is interrupted instantaneously. And the liquid level of D101 drops rapidly.<br/>2. The coking liquefied LPG is interrupted instantaneously after alkaline washing of series II.</p> | <p>1. The feeds of the series I are greatly reduced. If the feeding pump is not adjusted in time, it will cause P101 cavitation and great fluctuations to series I.<br/>2. Series II feed is interrupted.</p> | <p>1. Pay attention to the pressure of the fuel gas pipe network and adjust F101 in time.</p>   | <p>1. Change the LER LPG to the unqualified line at the boundary. Reduce the P101 outlet flow. Pay attention to the C101 feed temperature, the bottom heat source, the tower, the reflux tank, and the pressure, and adjust in time.<br/>2. The series II feed is interrupted. Stop the feed of series II. Change the feed to the unqualified line at boundary. Stopped the delivery of each tower tank in time. Close the first valve on the refined propylene output line at the boundary. Establish C201, C202, C203-C204 single tower</p> |



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|                  |                                    |   |  |  | circulation. And close one of the handvalves of the control valves if it has an internal leakage.   |
| Refinery Dept. 3 | Continuous catalytic reformer Unit | <ol style="list-style-type: none"> <li>1. The amount of makeup gas drops rapidly until interrupted.</li> <li>2. The reforming compressor shuts down, and the pressure of the low low pressure steam pressure fluctuates greatly.</li> </ol> | <ol style="list-style-type: none"> <li>1. K101 shuts down due to low low interlock caused by steam back pressure. Start emergency depressure valve of the reaction.</li> <li>2. The makeup gas is interrupted, and the unit emergency shutdown.</li> </ol> | <ol style="list-style-type: none"> <li>1. If Reforming unit Emergency shutdown, bypass the K101 back pressure interlock as soon as possible to ensure K101 runs as long as possible.</li> <li>2. All makeup gas is interrupted, press the K102 emergency stop button in CCR. Urgently reduce temperature and reduce feed. Cut off fresh feed. Establish reaction-fractionation long circulation. Handle fractionation system as makeup gas interruption shutdown.</li> </ol> | <ol style="list-style-type: none"> <li>1. Adjust the series I load or do emergency shutdown, depending on the system's liquefied gas situation, and establish single tower circulation for each tower.</li> <li>2. The series II depends on the condition of LPG from FXU. Series II may be shutdown if the feed is interrupted.</li> </ol> |
|                  | Isomerization Unit                 | <ol style="list-style-type: none"> <li>1. The flow rate of light naphtha to isomerization fluctuates greatly.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Change the line of light naphtha to isomerization, if the qualified and unqualified tank capacity is not enough, decrease the hydrocracking unit load to cooperate.</li> </ol>                                   | <ol style="list-style-type: none"> <li>1. According to the situation of the isomerization unit, make appropriate cooperation measures.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Adjust the processing load according to the amount of hydrocracking LPG.</li> </ol>   |

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|  | PSA Unit               | <p>1. The amount of makeup gas drops rapidly until interrupted.</p> <p>2. The fuel gas pipeline network fluctuates greatly.</p>   | <p>1. The makeup gas is interrupted, and emergency decrease R102 temperature and reduce the feed flowrate until makeup gas interruption condition.</p> <p>2. The desorption gas compressor shuts down, and the pressure of the fuel gas pipeline network drops rapidly.</p>  | <p>1. All makeup gas is interrupted, emergency stop K102, emergency decrease reactor temperature and decrease feed. Cut off fresh feed, and establish reaction-fractionation long circulation. The fractionation system is processed as the makeup hydrogen interruption shutdown.</p> <p>2. The fuel gas pipeline network pressure decreases. If PSA unit shuts down, hydrocracking unit is treated as emergency shutdown. Depending on the pressure of the fuel gas pipe network, turn off the main burner in time and maintain some of the pilot lights.</p> | <p>1. Depending on the pressure of the fuel gas pipeline network, open the C102 top pressure control valve or even other tower pressure control valves in time to prolong fuel gas pipeline network recovery;</p> <p>2. The hydrocracking unit has shut down, a large part of the series I feed is interrupted. Adjust according to feed conditions.</p> |
|  | Pre-hydrotreating Unit | <p>The makeup hydrogen amount drops rapidly, the pressure of the hydrogen pipe network begins to drop, the outlet pressure of the three stages of K102 compressor drops, and the pressure of the reaction system drops rapidly.</p> | <p>1. If the tank supply refined naphtha pump is not successfully started, the load of the reformer unit will decrease rapidly causing the hydrogen production drop rapidly. Withdraw hydrogen and reduce temperature and feed.</p> <p>2. If the refined naphtha pump is</p> | <p>1. The pre-hydrogenation has shut down, and the refined naphtha pump startup is slow. Depending on the pressure of the hydrogen pipe network, discharge hydrogen to the hydrogen system and reduce the reaction temperature and feed volume. Hydrogen pipe network is given priority;</p> <p>2. The pre-hydrogenation has shut down, and the refined naphtha pump starts relatively</p>  | <p>Adjust the feed (pump outlet) load in time according to the raw material condition. If the feed is interrupted, change the raw material to unqualified line, and establish single tower circulation.</p>  |

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|                  |                        |  | started smoothly, the reforming load will drop less and the pressure of the hydrogen pipe network will drop.  | quickly. The reformer unit is restored. Adjust the unit load in time according to the conditions of the hydrogen system.  |  |
|                  | Aromatics Complex Unit | <p>1. Low low pressure steam pipe network pressure fluctuates;</p> <p>2. The temperature of LPG fractionation hot water fluctuates greatly, and the operation of each tower is not stable.</p> | <p>1. K101 back pressure steam pressure fluctuates greatly</p> <p>2. LPG fractionation unit operation fluctuates greatly</p>  | <p>1. Timely bypass K101 back pressure steam interlock, pay attention to the pressure of the fuel gas pipeline network</p>  | <p>1. Contact utilities and put hot water heaters into use in time;</p> <p>2. Quickly adjust the amount of hot water according to the operating conditions of each point where hot water is used.</p>  |
| Refinery Dept. 4 | Flexicoking Unit       | <p>1. Low low pressure steam pipe network pressure fluctuates;</p> <p>2. Fuel gas pipe network fluctuates greatly</p>  | <p>1. K101 back pressure steam pressure is low low interlocked to stop, the reaction section emergency pressure relief starts;</p> <p>2. The flexible gas has rapidly reduced, causing the pressure of the fuel gas pipeline network to be rapidly reduced.</p> | <p>1. Bypass K101 back pressure steam interlock, as far as possible to ensure the operation of K101;</p> <p>2. If necessary, bypass F101 main burner pressure interlock</p> | <p>1. Depending on the pressure of the fuel gas pipeline network, open the C102 top pressure control valve or even other tower pressure control valves in time to prolong the time for the fuel gas pipeline network to recover;</p> <p>2. Series II will be handled as feed interruption.</p> |

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|  | Sulfur Recovery Unit | 1. Lean amine fluid system fluctuates, lean amine may be interrupted. | 1. Recycle hydrogen, low separated gas, fuel gas and LPG cannot be desulfurized | <p>1. If the lean amine liquid is partially interrupted, give priority to ensuring C206 LPG desulfurization, followed by cold flash gas (C102) desulfurization and dry gas desulfurization. P104 is circulated at a small flow rate. Close the C101 control valve and shut-off valve, open the exhaust hydrogen, and pay attention to the recycle hydrogen compressor steam consumption;</p> <p>2. If all is interrupted, stop the lean amine pump in time or use the minimum flow line to maintain for a short time, change the cold flash gas and dry gas to torch, change the liquefied gas to the unqualified, and discharge the spent hydrogen to the cold flash gas.</p> <p>3. Pay attention to the Sulfur recovery unit tank capacity. If the Sulfur recovery unit cannot be recovered for a long time, follow the unified command of the dispatcher.</p> | 1. Adjust the feed (pump outlet) load in time according to the raw material condition. If the feed is interrupted, change the raw material to unqualified line, and establish single tower circulation. |
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| Port, Storage and Transportation Dept. |  | 1. Tank feed interrupted | 1. VGO from the tank is interrupted, the feed quality of the unit fluctuates; may become lighter and the reaction bed temperature fluctuate   | 1. Maximize the direct supply of VGO and decrease the R102 temperature and decrease the feed flowrate. Contact the tank area to start the standby pump.  | 1. Adjust the processing load according to the amount of hydrocracking LPG. |
|  |  |                          | 1. The supply of CGO from the tank is interrupted, the feed quality of the unit fluctuates. The feed becomes lighter, and the temperature of the reaction bed fluctuates.   | 1. Increase the amount of VGO supplied by the tank, adjust the load according to the situation, and contact the tank area to start the standby pump.   | 1. Adjust the processing load according to the amount of hydrocracking LPG. |
|  |  |                          | 1. The supply of diesel from the tank is interrupted, the feed quality of the unit fluctuates. The feed becomes heavy, and the temperature of the reaction bed fluctuates. The seal flushing diesel is interrupted. | 1. Increase the amount of VGO supplied by the tank, adjust the load according to the situation. Pay attention to the operation of the backwash filter SR101, and contact the tank area to start the standby pump. If the liquid level of D310 is low, stop P211. | 1. Adjust the processing load according to the amount of hydrocracking LPG. |
|  |  |                          | 1. The coking diesel is interrupted. The feed property fluctuates. The feed becomes heavy. The temperature of the reaction bed fluctuates.  | 1. Increase the amount of VGO supplied by the tank, adjust the load according to the situation. Pay attention to the operation of the backwash filter SR101, and contact the tank area to start the standby pump. If the   | 1. Adjust the processing load according to the amount of hydrocracking LPG. |

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|             |  |   |  | liquid level of D310 is low, stop P211.  |  |
| Power Dept. |  | 3.5MPa steam is greatly reduced or interrupted; | <p>1. The speed of the steam turbine is insufficient. The amount of Recycle hydrogen is greatly reduced. And the temperature of the reaction bed rises out of control. Resulting in a excursion accident.</p> <p>2. The steam turbine shutdown because of low and low steam back pressure interlocks, and the device shutdown.</p> | <p>1. The steam is greatly reduced. Bypass back pressure steam pressure interlock. The amount of Recycle hydrogen is insufficient. Reduce the amount of recycle hydrogen at the inlet of the heating furnace (note the interlock value 26400Nm<sup>3</sup>/h). Reduce the amount of fuel gas. Control the outlet temperature of the heating furnace. Ensure the amount of quench hydrogen as much as possible. And to reduce the temperature and feed of the reaction.</p> <p>2. If the steam is interrupted, immediately start 0.7MPa/min emergency pressure relief and stop K101. Pay attention to the bed temperature. If the temperature rebound is obvious and fast, immediately start 2.1MPa/min emergency pressure relief, and the device will be treated as 3.5MPa steam interruption.</p> | <p>1. Adjust the processing load according to the amount of hydrocracking LPG.</p> |

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|  |  | Unit power failure              | 1. Electrically driven equipment and electric heating equipment stop running, K101 shutdown.  | 1. K101 lubricating oil pressure is low and shuts down, immediately start 0.7MPa/min emergency pressure relief. Pay attention to bed temperature. If the temperature rebound is obvious and fast, immediately start 2.1MPa/min emergency pressure relief, and the device will be dealt with according to the power failure plan.  | 1. Cut off the feed and productin, heat sources. And maintain pressure, heat and liquid level in each tower  |
|  |  | Demineralized water interrupted | 1. The liquid level of the wet air-cooler water tank drops rapidly, and the temperature of the air-cooler outlet rises rapidly.<br>2. The top pressure of C201, C204, C205, C207 rises rapidly, and the operation of each tower is disordered.<br>3. P105, P203, P206 seal flushing and demineralization are interrupted. | 1. If only the demineralized water is interrupted, change the demineralized water to plant water. Pay attention to the mechanical seal operation state of the pump with demineralized water flushing, change to plan11 seal flushing.<br>2. If the Power Dept. is shut down. It will be handled as emergency shutdown, power failure or medium pressure steam interruption. | 1. If only the demineralized water is interrupted, change to the plant water.<br>2. If the thermal power is shut down, it will be handled as the power failure accident. |

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| Utilities Dept. |  | Instrument air interruption | <p>1. The instrument air pressure alarm in the boundary area. The pressure drops below the required pressure of the control valve. And the valve automatically switches to a safe state.</p> <p>2. The 0.7MPa/min emergency pressure relief valve automatically opens and the device emergency shutdown.</p> | <p>1. At the beginning of the accident, quickly reduce the depth of reaction and the amount of feed, prepare for shutdown. Confirm that the instrument air cannot be recovered within 30 minutes. And the unit should be handled as the instrument air interruption.</p>  | <p>1. At the beginning of the accident, quickly reduce the feed rate to prepare for the shutdown. Confirm that the instrument air cannot be recovered within 30 minutes, then handle as the instrument air interruption. The towers are temperature and pressure-maintained.</p> |
|                 |  | 0.6MPa nitrogen interrupt   | <p>1. D102 pressure control has no gas source, which may cause D102 equipment damage.</p> <p>2. K101 isolation nitrogen, secondary gas interruption, K102 middle frame, oil scraper ring, main packing nitrogen interruption.</p>  | <p>1. Pay attention to the change of D102 pressure and liquid level. If the pressure drops quickly, manually fully close the exhaust valve and raise the liquid level. If it cannot be relieved, perform emergency shutdown.</p> <p>2. Confirm that the 0.6MPa nitrogen will be completely interrupted and stop K102, K101, and handle the accident as unit shutdown.</p> | <p>1. Adjust the processing load according to the amount of hydrocracking LPG.</p>   |



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|  |  | 2.5MPa nitrogen interruption  | 1. 2.5MPa nitrogen pressure alarm in boundary area  | <ol style="list-style-type: none"> <li>1. If only 2.5MPa nitrogen is interrupted, but instrument air and 0.6MPa nitrogen are not interrupted, then operate stably and wait for recovery.</li> <li>2. If instrument air and 0.6MPa nitrogen are interrupted, the device shall be disposed of in the above direction.</li> </ol>                              | 1. Adjust the processing load according to the amount of hydrocracking LPG.                                 |
|  |  | Circulating water interrupted | <ol style="list-style-type: none"> <li>1. The outlet temperature of each water cooler rises instantly</li> <li>2. The outlet temperature of the makeup gas compressor is high and high interlocking</li> <li>3. The temperature of the lubricating oil of the K101 rises rapidly. And the positive pressure of the shaft seal steam extractor.</li> </ol> | <ol style="list-style-type: none"> <li>1. The device should be handled as the circulating water interruption accident.</li> <li>2. The emergency depressure valve 0.7MPa/min should be started urgently. And the operation of the K101 should be maintained as much as possible. And the steam from the shaft seal should be discharged on site.</li> </ol> | 1. Handle as emergency shutdown, cut off the feed and production. Maintain heat and pressure of each tower. |