# OME SHE Learning

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| **Learning number** | |
| **Operating Entity** | Secunda Operations, LVCE, Unit 086 |
| **Date of incident** | 05 September 2024 |

| **Incident type** | Occupational Safety | Process Safety | Environment | Product Transportation | Health | Security | Equipment Damage | PSF |
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| **Relevant Life Saving Rules** |  |  |  |  |  |  |  |  |  |  |  |
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| | Working at Height | Obey Road Safety Rules | Comply with the Work Permit | Control Lifting Operations | Control Confined Space | Control Ignition Sources | Follow LOTO Procedures | Wear Correct PPE | No Alcohol or Drugs On Site | Beware of Heavy Mobile Equipment | Control Hazards When Excavating |
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| **Relevant Process Safety Fundamentals** |  |  |  |  |  |  |  |  |  |  |  |  |
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| | Double Isolation | Product Transfer | Safety Critical Devices | Adhere to SOP | Walk the Line | Process Changes | Completeness of Box-up | Safe Making | Respond to Alarms | Well Barriers | Subsurface Uncertainties | Well Control Equipment |
| | | | | X | | X | | X | | | | |

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| **Key Undesirable Event** | Loss of containment of chemical energy |
| **Description of the incident** | A fire occurred in the sump, 086CB-502, resulting in an overpressure, causing damage to sump auxiliary equipment, cabling, and instrumentation. |
| **Underlying and root causes** | **Direct causes**<br>DC1 – A combination of the presence of oxygen, the sump pump running dry and causing friction heat, and presence of flammable material.<br><br>**Underlying causes**<br>UC1 – Not appreciating the process safety importance of nitrogen before energising the sump pump.<br>UC2 – Not following the repair approval process on the damaged sump pump.<br>UC3 – Not following the permit to work close-out process (failing to re-instate plant safety systems before energizing the pump).<br>UC4 – Not following the CFO and PPSR process by failing to identify exception items (nitrogen blank and 86PC510B) before commissioning the plant.<br><br>**Root causes**<br>RC1 – Oversight during HAZOP process to consider the correct minimum operating levels in the sump relative to pump minimum operating level.<br>RC2 – MOC process failed on updating the QCPs and data sheets for 86PC-510A/B.<br>RC3 – There is no specific sump commissioning checklist including nitrogen commissioning with pump |

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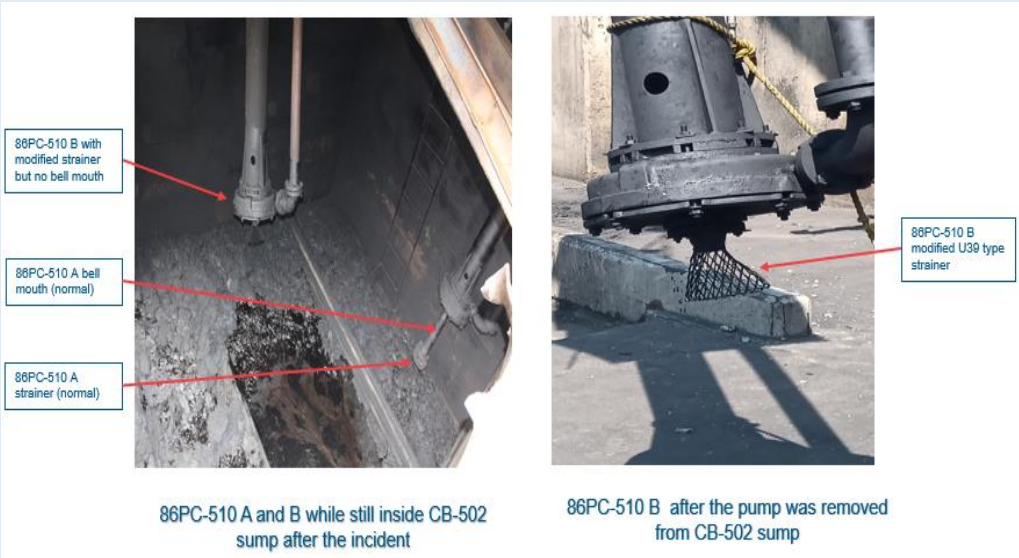
| **Key learning and control improvement recommendations** | 1. **Nitrogen inerting system (safety critical system)** – Nitrogen inert blanket to the sump should not be isolated during vacuum cleaning or maintenance on the sump auxiliaries.<br>• The risk of asphyxiation due nitrogen in the sump was deemed greater than the process safety risk associated with operating the sump without nitrogen.<br>• The SOP and training is not specific for abnormal conditions (i.e., during maintenance activities on the sump or auxiliary equipment).<br>2. **Sump level calibration** – The operational range and trip limits of the level for the sump pump must be confirmed whenever modifications are made to the length of the pump.<br>• During HAZOP review for pump testing, the correct minimum operating level in the sump relative to pump minimum operating level was not considered.<br>• The existing calibration of the sump level is inadequate for the pumps currently in operation. The low level must be raised to the minimum operating level for the pump and should not fall below the suction port of the pump.<br>3. **MOC process** – Diligent and disciplined execution of MOC next steps must be to be completed for any changes made on equipment.<br>• The MOC process failed on updating the QCP's and data sheets for 86PC-510A/B<br>• Failure to adhere to the MOC process during the transition to a new technology level transmitter, which maintained the same set points as the original transmitter.<br>• The missing strainer and suction pipe (bell mouth) on 86PC-510 B was replaced with an alternative unit 39 type strainer without following the MOC or repair approval process.<br>4. **HAZOP team composition** – The HAZOP team selection and attendance of personnel to comprise of relevant experienced disciplines.<br>• The HAZOP team for the RTO project conducted without representation from the operations teams<br>• A significant turnover of project personnel occurred during the project phase, resulting in compromised transfer of knowledge.<br>5. **Inadequate documentation handover between project and plant –** End of job documentation should be properly prepared and transferred to operations.<br>• The MOC for the VOC abatement project was not fully implemented.<br>• There was no signed-off procedure for RTO.<br>• There was no procedure on how to make the sump safe for abnormal or maintenance activities.<br>6. **CFO and PPSR** – CFO and PPSR process importance to be understood and followed. |
| **Identification of standard or good practice related to the incident** | None |
| **Add pictures** |  <br>86PC-510 A and B while still inside CB-502 sump after the incident<br>86PC-510 B after the pump was removed from CB-502 sump<br><br>At the time of the incident, the sump level was was below the suction nozzle of the B-pump due to its shorter height compared to the A-pump. The minimum operating level for the pump, based on the OEM should be above the pump casing (77% of current measurement range) to ensure proper lubrication of the internal components of the pump |

**To prevent future incidents, it is recommended that this incident learning is appropriately shared and implemented by relevant persons in your Operating Model Entity, where applicable.**

**Together towards ZERO HARM and SUSTAINABILITY**

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