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| EVENT REPORT:  Loss of Primary Containment (LOPC) from Koma Phase 2 Slugcatcher Liquid Outlet Level Control Valve 11LCV910 | | | | | | | | | | | | | | | | |
| 1.PROBLEM TITLE | | | | | | | | | | | | | | | | |
| Title: Failure of 11LCV910 | | | | | | | | | | | | | | | | |
| Date Occurred: 08/01/2023 | | | Time: 07:00Hrs | | | Location: Gbaran Central Processing Facility | | | | | | | | | | |
| Date Reported: 08/01/2023 | | | Time: 07:00Hrs | | | Reported by: Spy Police (xxxxxxx) | | | | | | | | | | |
| **Event Type** | | Potential Threat (not yet occurred)  Reliability/integrity – Trip  Reliability/integrity – Equipment failure  Reliability/integrity – Others | | | | | | | | | |  | | | | |
| Equipment Tag Number: 11LCV910 | | | | | | | | | | | | | | | | |
| **Threat Description:**  At about 07:00hrs on the 8th of January 2023, Gbaran control room received a call from a spy police on routine Security walkdown along patrol path, on gas release from liquid outlet of Koroama phase 2 slugcatcher. The incident was then reported to the Operations Supervisor, Ops & Maintenance Field Team Leaders and the PUM. There was no injury to personnel. | | | | | | | | | | | | | | | | |
| Consequences: | | | |  | Risk Assessment: (People, Asset, Environment, Reputation) | | | | | | | | | | | |
| No deferment / outage:  Oil:  Gas: 45mmscf/d  Water:  Flare:  Other: 0.9 Kbbl/d condensate  Downtime: | | | |  | | A | B | C | | D | | E | Actual: A3 Potential: A3E    Consequence Scenario:  Actual: A3 | | |
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| 1 | |  |  |  | |  | |  |
| 2 | |  |  |  | |  | |  |
| 3 | |  |  |  | |  | | A3E |
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| Immediate Corrective Actions Taken: | | | | | | | | | | | | | | | | |
| # | Immediate action | | | | | | | | | Date | | | | | By | Notification / WO # |
| 1 | Isolation of Koma Phase 2 Slug Catcher | | | | | | | | | 08/01/23 | | | | | Asset |  |
| 2 | Depressurization and draining of Koma Phase 2 Slug Catcher | | | | | | | | | 08/01/23 | | | | | Asset |  |
| 3 | Removal of 11LCV910 for repairs/replacement | | | | | | | | | 08/01/23 | | | | | Asset |  |
| 4 |  | | | | | | | | |  | | | | |  |  |
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| 2. WHAT DO WE THINK CAUSED THE PROBLEM? | | | | | | |
| **Investigation Team** | | Abdul Mohammed, Ibrahim Saheed, Itoro Ekanem, Lawson Agabi, Amadi Anderson and Charles Ogbuehi | | | | |
| **Problem (Primary Effect)** | | 1. Expected: No LOPC (leaks) from the slug catcher liquid outlet valve) and the valve continues to function as per design. 2. Actual: Spy Police outside Gbaran Perimeter observed gas release from the liquid outlet of Koroama phase 2 slug catcher Control Valve (11LV910) 3. Impact: LOPC; Deferment of gas and condensate production of circa 45MMscf/d and 1100bbl/d respectively. | | | | |
|  | | **Why? / Immediate cause** | **Answer/Root Cause** | | 3. EVIDENCE? | |
| Why | | Why did gas release from 11LV910 (LOPC)? | 1. The Control Valve Flange Face and Gasket ruptured | | 1. Physical observation of failed Control Valve and Gasket | |
| Why 2 | | Why did the Control Valve Face and Gasket Rupture? | 1. Valve internals eroded beyond design capacity | | 1. Physical observation of valve internals indicate significant level of erosion | |
| Why 3 | | Why did Valve internals erode beyond design capacity? | 1. Sand contained in produced liquids continuously struck the valve internals at higher velocity than design of 4m/s 2. Gas flashing across the vena contracta reduced the strength/thickness of the valve internals | | 1. High quantity of sand recovered during yearly TAM, sand has also been recovered from the liquid outlet and drain lines. Sand particles observed on valve internals. 2. The Vapour Pressure (96 bar) of the produced liquid at the Vena Contracta was higher than the discharge pressure (38 bar) at the valve | |
| **Comments:**  The repeat failure of 11LCV910 is suspected to be caused by a combination of gas flashing at the venacontracta and erosion by high velocity sand particles contained in the produced liquid. This has resulted to erosion of the valve downstream the venacontracta. | | | | | | |
| **4. WHAT SOLUTIONS DO WE HAVE IN MIND?** | | | | | | |
| **#** | **Proposed Action** | | | **Action Party** | | **Target Date** |
| 1 | Carry out detailed Causal Learning investigation to determine the root cause of the repeat failure of 11LV910 | | | EPST | |  |
| 2 |  | | |  | |  |
| 3 |  | | |  | |  |
| **5. HOW WILL THE PROPOSED SOLUTIONS ELIMINATE THE CAUSES OF THE PROBLEM?** | | | | | | |
| * Investigations will reveal causal factors responsible for repeat failure of 11LCV910 | | | | | | |
| **LESSONS LEARNT:**   * Conduct a lookback on implemented solution for 11LCV910 | | | | | | |
| **Incident Owner:** Memberr Igbigioyibo | | | | | | |