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| **EVENT REPORT:** | | | | | | | | | | | | | | | |
| 1. WHAT IS THE PROBLEM? | | | | | | | | | | | | | | | |
| Title: BNAG plant tripped on ESD traced to 81UZ931 | | | | | | | | | | | | | | | |
| Date Occurred: 10.11.2019 | | | | Time: 17:40 hrs | | | | | | | Location: BNAG Plant | | | | |
| Date Reported: 11.11.2019 | | | | Time: 16:12 hrs | | | | | | | Reported by: Ibrahim Odukoya | | | | |
| **Event Type** | | Potential Threat (not yet occurred)  Reliability/integrity – Trip | | | | | | | | | Reliability/integrity – Equipment failure  Reliability/integrity – Others | | | | |
| Equipment Tag Number: 81UZ931, 81UZ901A/B, 81UZ902A | | | | | | | | | | | | | | | |
| Background/ Threat Description:  At 1740hrs BNAG plant tripped on 81UZ931, the alarm was reset and plant re-started @ 1806hrs while investigation was ongoing to ascertain the cause of the trip. BNAG plant tripped repeatedly on ESD at 1849hrs with 81UZ901A/B and 81UZ902A indication on F&G mimic panel, all attempt to reset the plant at this moment proved abortive. The plant was down for about 2 hours and finally restarted @ 2052hrs with the intervention of PACO, Electrical and Operations team.    Sequence of Events:   * At 1740hrs/11.11.2019, BNAG plant tripped on ESD with 81UZ931 displayed on F&G mimic panel * At 1806hrs/11.11.2019, BNAG plant was restarted * At 1849hrs/11.11.2019, BNAG plant tripped on ESD with 81UZ901A/B and 81UZ902A displayed on F&G mimic panel * At 1859hrs/11.11.2019, PMC was informed * At 2052hrs/11.11.2019, BNAG plant was finally restarted | | | | | | | | | | | | | | | |
| Consequences: | | |  | | Risk Assessment: (People, Asset, Community, Environment) | | | | | | | | | | |
| Deferment/outage  Oil: Nil  Gas: Nil  Flare: Nil  Other: Gas Quality  Downtime: 2hrs | | |  | A | B | C | | D | | E | Actual: A1  Potential: A2  Consequence Scenario  The Risk Assessment Matrix was ranked A2. The impact was on asset | | |
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| Immediate Corrective Actions Taken: | | | | | | | | | | | | | | | |
| # | Immediate action | | | | | | | | Date | | | | | By | Notification/WO # |
| 1 | Reset F&G alarm | | | | | | | | 11.11.2019 | | | | | CRO |  |
| 2 | Trouble-shooting of the cause of the cause of ESD | | | | | | | | 11.11.2019 | | | | | PACO/OPS/ELECT |  |
| 3 | Switched UPS power supply to the standby bank | | | | | | | | 11.11.2019 | | | | | ELECT |  |

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| 2. WHAT DO WE THINK CAUSED THE PROBLEM? | | | | | | | |
| **Investigation Team** | | | **Team Composition:**  **Asset Members:** Ibrahim, O; Opene, C; Johnson, F; Etulan, A; Okoro, O; Essienton V; Muhammad, S; Odumo, L; Oweh, I; Ukpong N; Atabor, H; | | | | |
| **Problem Statement (Primary Effect)** | | | 1. Expected: BNAG plant dehydrates Natural gas from Oloma NAG wells and supply gas to NLNG 2. **Actual:** BNAG plant tripped on ESD 3. Impact: BNAG plant was down for 2hours with a supply shortfall of about 37MMscf/d | | | | |
|  | | **Why? / Immediate cause** | | **Answer/Root Cause** | | 3. EVIDENCE? | |
| Why 1 | | Why did BNAG plant trip? | | 1. There was activation of ESD (Yes) | | 1. Physical observation of Plant shutdown and blowdown. 2. DCS event log and Mimic Panel Display. | |
| Why 2 | | Why was there activation of ESD? | | 1. Signal from F&G device (Yes)  2. Push button (No)  3. Loss of instrument air (No) | | 1. Physical display of Alarm on F&G mimic panel. (81UZ931, 81UZ901A/B, 81UZ902A) | |
| Why 3 | | Why did Signal from F&G device activate the ESD? | | 1. There was inadequate power to the device (Yes)  2. Detection of fire/ smoke (No)  3. Partial contact (No) | | 1. Observed controller not powered | |
| Why 4 | | Why was inadequate power to the device? | | 1. Low Voltage from the Rectifier (Yes)  2. Faulty Rectifier (No) | | 1. Low battery voltage indication on the Battery display (19v DC)  2. Physical check with multimeter indicates 20 voltage DC (below threshold level). | |
| Why 5 | | Why was there Low Voltage from the Rectifier? | | 1. Rectifier was on off position (Yes) | | 1. Found on off position by electrical 2. Accidentally switched to off position | |
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| **4. WHAT SOLUTIONS DO WE HAVE IN MIND?** | | | | | | | |
| **#** | **Proposed Action** | | | | **Action Party** | | **Target Date** |
| 1 | Regular checks on Rectifier status | | | | Electrical | | Continuous |
| 2 | Restore rectifier to “on” position and put a caution sign to prevent on non-intentional switching | | | | Electrical / Operation | | Immediate |
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| **5. HOW WILL THE PROPOSED SOLUTIONS ELIMINATE THE CAUSES OF THE PROBLEM?** | | | | | | | |
| 1. Continuous monitoring and log taking / daily checks | | | | | | | |
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| **LESSONS LEARNT** | | | | | | | |
| **Incident Owner:** | | | | | | | |