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| Asset | Swamp West Asset Team | **Field** | Swamp West Team Field: Otumara |
| **Meeting** | Risk Assessment of Red Well in Swamp West (Wells with overdue CM) / Action code 9 wells –OTUM012, OTUM002, ESCB015 | | |
| **Date** | 13th/October/2019 | | |
| **Attendees** | **Reviewers** | **Attendees** | |
| Ajaraogu Benjamin (PT DCC & Well Integrity TA2) | * Odumodu, Somtochukwu (WIFP/PT) * Usin, Effiong (PUM Otumara Area) * Onuoha Chinedu (CWI) * Anyabolu Anthony (CWI) * David Okos-Iboje (Ops team lead) * Irem-Oko, Edith (Ops planner) * Ewarah Erhumu (Ops Otumara) | |
| **Objectives** | * To generate Risk Assessment Matrix for action code 9 wells in Otumara Node. | | |
| **Key Messages or Highlights (Summary of Decisions)** | OTUM012L, ESCB015, OTUM002 have been risk assessed and classified as Medium risk. OTUM12L/S and OTUM002L/S have been closed in based on the outcome of the risk assessment while ESCB015L/S are still in production with mitigations in place.  An immediate repair of the failed valves have been advised and CWI are currently sourcing for spares to repair the failed valves. No deviation was approved for these category of wells. | | |

**OTUM002**

**Background**

**OTUM002L: E5000S**

* It is currently producing at an av.net oil rate of 260bopd, 0%BSW, FTHP of 120psig on NF. (October 2020)
* Last measured CHP: A = 827psig & B = 0psig (September 2020)
* CITHP Long :1334psig

**OTUM002S: D5000S**

* Current production is: 160bopd, 88%BSW, FTHP = 120psig on Gas lift. (September 2020)
* Last measured CHP: A = 827psig & B = 0psig (September 2020)
* CITHP: 798psig
* **OPS WIT was carried out on the 13th of September 2020**
* Long String: LMV and SCSSSV failed WIT test
* Short String: Swab valve, FWV and ScSSSV failed WIT test.
* {action code 9 - Make well safe immediately and plan repair / test / suspension / abandonment. Make well safe may be carried out by repairing defect at initial)
* OTUM002S grease fittings / check valves are blocked
* OPS team were unable to access OTUM002L grease nipple due to the position of welded gratings. Hence they were unable to grease the MV
* **Based on risk assessment, this well has been classified as medium risk and it was agreed to shut in the well until valves are repaired.**

**RAM for OTUM002 – Medium Risk**

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| **🡨 Severity** | **Consequences** | | | | **Increasing likelihood 🡪** | | | | |
| People | Assets | Community | Environment | **A** | **B** | **C** | **D** | **E** |
| Never heard of in the industry | Heard of in the industry | Has happened in the Organisation or more than once per year in the Industry | Has happened at the Location or more than once per year in the Organisation | Has happened more than once per year at the Location |
| **0** | No injury or  health effect | No  damage | No  effect | No  effect |  |  |  |  |  |
| **1** | Slight injury or health effect | Slight damage | Slight  effect | Slight  effect |  |  |  |  |  |
| **2** | Minor injury or health effect | Minor damage | Minor  effect | Minor  effect |  |  | **A=C2** |  |  |
| **3** | Major injury or health effect | Moderate damage | Moderate effect | Moderate effect |  |  | **C=C3** |  |  |
| **4** | PTD or  up to 3 fatalities | Major damage | Major  effect | Major  effect |  | **P=B4** | **E=C4** |  |  |
| **5** | More than  3 fatalities | Massive damage | Massive effect | Massive  effect |  |  |  |  |  |

* + The risk to people (health effect/injury) is considered **Medium (B4)** because these wells are in close proximity to the community or human settlement and could affect people if there is any top event (fire, etc)
  + Risk to the environment **is Medium (C4)**.
  + Risk to the asset (damage or complete loss) is **Low** **(C2)**. Fire outbreak may not be contained and well head could be lost thus the rating given that a wellhead / Xmas tree will cost between $100,000 - $1,000,000
  + Risk to our community is also **Medium** **(C4)**. This could be in form of strained community relations or issues with other key stakeholders such as Environmental NGOs, DPR, etc. due to leak/spill of hydrocarbons from the well.

## Recommendation / actions for OTUM002

* + Carry out risk assessment for the candidate wells and generate a risk assessment matrix – **13th October 2020; Completed.**
  + Operations are to shut in the well immediately pending when the failed valves have been repaired – **Completed**
  + CWI should check for spares availability: **20th October 2020**
  + CWI & Operations should change grease nipple to allow injection of grease sealant. **30th October 2020**
  + CWI should update eWIMS report to reflect 2S Master Valve failure. **17th October 2020.**
  + CWI should re-test the well and establish at least a single barrier, otherwise a well kill should be immediately planned for the well integrity repair. **19th October 2020.**
  + Operations should liaise with asset engineering and plan for the repair of the gratings. 25th October 2020.

## Mitigating for OTUM002

* + Operations should take out gaslift from OTUM002S. (The well will be unable to flow due to hydro-static head- 88%water cut)
  + Surface Safety valve and Flowline plug valves are integral, thus the well should be closed in immediately.
  + There is an intrusive cage that prevents vandalization

## Controls for OTUM002

* + Operation to carry out regular visits / surveillance around the well to mitigate vandalism or early detection of any leak to the environment (three times every week
  + Activate emergency response if any top event occurs
  + Well should remain closed in

**ESCB015**

**Background**

**ESCB015L: C2000U**

* Interval is currently producing at an av. net oil rate of 830bopd, 24%BSW, FTHP = 165psig on bean 44/64”.
* Last measured CHP: A = 0psig & B = 0psig
* CITHP: 660psig

**ESCB015S: B2000U**

* Interval is currently producing at an av. net oil rate of 340bopd, 60%BSW, FTHP = 225psig on bean 28/64”.
* Last measured CHP: A = 0psig & B = 0psig
* CITHP: 640psig
* **CMB WIT was carried out in June 2020**
* Long String: SCSSSV failed WIT test
* Short String: SSV and ScSSSV failed WIT test.
* {action code 9 - Make well safe immediately and plan repair / test / suspension / abandonment. Make well safe may be carried out by repairing defect at initial)
* **Based on risk assessment, this well has been classified as medium risk.**

**RAM for ESCB015 – Medium Risk**

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| **🡨 Severity** | **Consequences** | | | | **Increasing likelihood 🡪** | | | | |
| People | Assets | Community | Environment | **A** | **B** | **C** | **D** | **E** |
| Never heard of in the industry | Heard of in the industry | Has happened in the Organisation or more than once per year in the Industry | Has happened at the Location or more than once per year in the Organisation | Has happened more than once per year at the Location |
| **0** | No injury or  health effect | No  damage | No  effect | No  effect |  |  |  |  |  |
| **1** | Slight injury or health effect | Slight damage | Slight  effect | Slight  effect |  |  |  |  |  |
| **2** | Minor injury or health effect | Minor damage | Minor  effect | Minor  effect |  |  | **A=C2** |  |  |
| **3** | Major injury or health effect | Moderate damage | Moderate effect | Moderate effect |  | **P=B3** | **C=C3** |  |  |
| **4** | PTD or  up to 3 fatalities | Major damage | Major  effect | Major  effect |  |  | **E=C4** |  |  |
| **5** | More than  3 fatalities | Massive damage | Massive effect | Massive  effect |  |  |  |  |  |

* + The risk to people (health effect/injury) is considered **Low (B3)** because these wells are far away from the community or human settlement .
  + Risk to the environment **is Medium (C4)**.
  + Risk to the asset (damage or complete loss) is **Low** **(C2)**. Fire outbreak may not be contained and well head could be lost thus the rating given that a wellhead / Xmas tree will cost between $100,000 - $1,000,000
  + Risk to our community is also **Medium** **(C4)**. This could be in form of strained community relations or issues with other key stakeholders such as Environmental NGOs, DPR, etc. due to leak/spill of hydrocarbons from the well.

## Recommendation / actions for ESCB015

* + Carry out risk assessment for the candidate wells and generate a risk assessment matrix – **13th October 2020; Completed.**
  + CWI should check for spares availability: **20th October 2020**
  + CWI & Operations should retest the SSV and attempt to grease it. 17**th October 2020**
  + CWI should plan to carry out CM immediately (to repair the SCSSSV) since they are currently in the field. **30th October 2020.**

## Mitigating for ESCB015

* + There is an intrusive cage that prevents vandalization

## Controls forESCB15

* + Operation to carry out regular visits / surveillance around the well to mitigate vandalism or early detection of any leak to the environment (three times every week
  + Activate emergency response if any top event occurs

**OTUM012L**

**Background**

**OTUM012L: D3000M**

* + Interval produced at an av. net oil rate of 815bopd, 31%BSW, FTHP = 315psig on bean 28/64”.
  + Last measured CHP: A = 0psig & B = 0psig
  + **OPS WIT was carried out in June 2020**
  + Long String: UMV and SCSSSV failed WIT test
  + Short String: UMV, LMV and ScSSSV failed WIT test.
  + {action code 9 - Make well safe immediately and plan repair / test / suspension / abandonment. Make well safe may be carried out by repairing defect at initial)

**OTUM012S**

**Background**

* Both Strings came onstream in 1972.
* OTUM012L is producing at an av. Rate of ca. 700bopd while OTUM012S is produced at an average rate of ca. 800bopd before it was recently closed in for flowline leak.
* OTUM012S SCSSSV is currently out of position and is stuck at the XMAS Tree valve. Swab valve and Flow wing valve are the only valves currently holding back outflow of hydrocarbon to the environment.
* Based on risk assessment, this well has been classified as Medium Risk
* Request is for a 6 month deviation to give room for well kill, Xmas tree replacement & SCSSSV repair / replacement.

**RAM for OTUM012 – Medium Risk**

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| **🡨 Severity** | **Consequences** | | | | **Increasing likelihood 🡪** | | | | |
| People | Assets | Community | Environment | **A** | **B** | **C** | **D** | **E** |
| Never heard of in the industry | Heard of in the industry | Has happened in the Organisation or more than once per year in the Industry | Has happened at the Location or more than once per year in the Organisation | Has happened more than once per year at the Location |
| **0** | No injury or  health effect | No  damage | No  effect | No  effect |  |  |  |  |  |
| **1** | Slight injury or health effect | Slight damage | Slight  effect | Slight  effect |  |  |  |  |  |
| **2** | Minor injury or health effect | Minor damage | Minor  effect | Minor  effect |  |  | **A=C2** |  |  |
| **3** | Major injury or health effect | Moderate damage | Moderate effect | Moderate effect |  |  | **C=C3** |  |  |
| **4** | PTD or  up to 3 fatalities | Major damage | Major  effect | Major  effect |  | **P = C4** | **E=C4** |  |  |
| **5** | More than  3 fatalities | Massive damage | Massive effect | Massive  effect |  |  |  |  |  |

* + The risk to people (health effect/injury) is considered **Low (C4)** because these wells are far away from any community or human settlement
  + Risk to the environment **is Medium (C4)**.
  + Risk to the asset (damage or complete loss) is **Low** **(C2)**. Fire outbreak may not be contained and well head could be lost thus the rating given that a wellhead / Xmas tree will cost $100,000.
  + Risk to our community is also **Medium** **(C4)**. This could be in form of strained community relations or issues with other key stakeholders such as Environmental NGOs, DPR, etc. due to leak/spill of hydrocarbons from the well.

## Recommendation and mitigating actions for OTUM012

* + Carry out risk assessment for the candidate wells and generate a risk assessment matrix –**Completed.**
  + Operation to carry out weekly surveillance around the well to mitigate vandalism or early detection of any leak to the environment until the cage is installed: Weekly
  + Intrusive detection System Cage in place to prevent vandalization:
  + OTUM012L/S should remain closed in.
  + PT to generate a proposal for Well kill, XMAS Tree and SCSSSV installation for OTUM012S **Completed**
  + CWI to retrieve and replace / repair SCSSSV & MV for the Long string **30th November 2020.**

## Mitigating for OTUM012

* + There is an intrusive cage that prevents vandalization

## Controls for OTUM012

* + Operation to carry out regular visits / surveillance around the well to mitigate vandalism or early detection of any leak to the environment (three times every week
  + Activate emergency response if any top event occurs

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