**Petroleum Development Oman LLC**

**MSE3**

**2015 LTI Incident Analysis Study**

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## Summary

PDO achieved an LTIF performance of 0.28 in 2015, a 12.5% improvement compared with the 0.32 rate achieved in 2014. We suffered 51 LTIs, 7 less than in 2014 with 184.9 million man-hour worked. The following analysis of the incidents is designed to identify trends and points of statistical interest for you to target future resources.

## Analysis

## Directorates Analysis

## Directorate Breakdown

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Directorate** | **Q4** | | | **Full Year** | | |
| **2015** | **2014** | **% Change** | **2015** | **2014** | **% Change** |
| **UWD** | 11 | 11 | 0 | 37 | 37 | 0 |
| **OSD** | 1 | 0 | 100 | 3 | 8 | (63) |
| **OND** | 0 | 0 | 0 | 0 | 2 | (100) |
| **XD** | 0 | 0 | 0 | 1 | 1 | 0 |
| **UID** | 1 | 1 | 0 | 8 | 9 | (11) |
| **GD** | 0 | 0 | 0 | 0 | 1 | (100) |
| **UEOD** | 0 | 0 | 0 | 0 | 0 | 0 |
| **CPDM** | 0 | 0 | 0 | 2 | 0 | 200 |
| **Total** | **13** | **12** | **8** | **51** | **58** | **(12)** |

## PDO % LTI Profile by Directorate – 2014/2015

## LTIs Trend by Quarter 2014/2015

## LTIs Per Operational Team

|  |  |  |
| --- | --- | --- |
| **Sr. No** | **Directorate** | **No of LTIs -Team** |
| 1 | UWD | **1**- UWX, **16**- UWO, **7**-UWL, **2**-UWB, **1**-UWS, **2**-UWI, **8**-UWC |
| 2 | CPDM | **2-**CRC |
| 3 | UID | **1-**UIR, **4**-UIB, **2**-UIE, **1**-UIPT |
| 4 | XD | **1-**XGO |
| 5 | OSD | **2-**OSC, **1**-OSO |

## PDO v Contractor LTIs

* 1. 51 - PDO contractor employees
  2. 0 - PDO employees

## Contractors With the Worst Incident Performance

There are 31 contractors who suffered LTI incidents. The breakdown is as follows:-

|  |  |
| --- | --- |
| **Number of LTIs** | **Contractors** |
| **4** | Dalma Energy |
| **3** | Ba Omar, Ensign, Midwesco, Carillion |
| **2** | WG-CCC, Bahwan Exel, Baker Hughes, Weatherford, Medco, NDSC, MBPS, Schlumberger, Worly Parson Arabian Industries. |
| **1** | Al Hajiry, Al Turki, Shivani, KCA Deutag, Sahara, Powertech, Desert Byrne, Ardiseis, SOFS, SPC, ADS, Thomssen, Bahwan Lamnalco, Petrozone, Abraj, Gulf energy, Gulf Drilling. |

## LTI Incident Descriptions

|  |
| --- |
| 1. Slipped while descending staircase resulting in an injured knee. |
| 1. Trapped between hose and hand tools board resulting in a fractured finger. |
| 1. Fell 1.5m from the top of shovel wheel resulting in a fractured wrist. |
| 1. Fell 1.8m from the top of a trailer resulting in a fractured wrist. |
| 1. Crushed by a concrete block resulting in a fractured leg. |
| 1. Amputated finger between corrosive ring and the tubing hanger. |
| 1. Trapped finger between flow line and shale shaker pipe fracturing the finger |
| 1. Prime mover rolled over resulting in a fractured pelvis. |
| 1. Fell over on moving vehicle (Hose Deployment Unit) causing fatal head injury. |
| 1. Struck by a co-flex hose end causing fractures to two toes. |
| 1. Fell from an engine skid resulting in fractured wrist. |
| 1. Trapped finger in the radiator fan causing a deep cut. |
| 1. Trapped finger between the slip handle and boot causing amputation. |
| 1. Slipped while walking across the roadway resulting in a fractured leg. |
| 1. Crushed by a metal pipe unloading metal barriers fracturing thumb. |
| 1. Struck by a chain binder under tension resulting in eye and cheek injury. |
| 1. Struck by a hose due to residual pressure resulting in fractured jaw. |
| 1. Trapped finger between the elevator and the tong resulting in fractured finger. |
| 1. Crushed between supporting leg and catwalk resulting in a fractured finger. |
| 1. Slipped and fell on the x-mas tree fracturing arm. |
| 1. Fell from height filling a diesel tank injuring knee. |
| 1. Vehicle incident resulted in a fractured forearm. |
| 1. Struck by top drives lifting loop resulting in a fractured arm. |
| 1. Electrical flash over resulting in burns to the face, neck and hands. |
| 1. Trapped finger between the mast and the BOP fracturing a finger. |
| 1. Motor vehicle incident between a pickup and a canter resulting in multiple fractures. |
| 1. Crushed by a falling pipe resulting in an ankle fracture. |
| 1. Trapped between a cable and a clamp resulting in finger amputation. |
| 1. Crushed and fractured fingers between substructure and the Tubing Head Spoil |
| 1. Trapped between the junk cover and junk box resulting in finger tip amputation. |
| 1. Trapped finger between the bolt and the flange resulting in finger amputation. |
| 1. Trapped finger between a gate and a valve body resulting in finger tip amputation. |
| 1. Struck by a tubing joint jumped out of V groove resulting in a fractured thumb. |
| 1. Slipped while ascending the staircase whilst carrying load resulting in a crashed finger. |
| 1. Trapped hand while testing a hydraulic valve resulting in a fractured finger. |
| 1. Crushed by blow out preventer and its fixing resulting in fractured finger. |
| 1. Burned by acid whilst cleaning a drain resulting in upper part body burns. |
| 1. Burned by acid whilst cleaning a blocked pipe resulting in fingers burn. |
| 1. MVI between canter and water tanker, fracturing knee and dislocating hip. |
| 1. Crushed by a crane sling resulting in fractured middle and ring fingers. |
| 1. Slipped while jumping to the barge resulting in twisted knee. |
| 1. Crushed finger while hammering a flange resulting in a fractured thumb. |
| 1. Trapped between a spanner and a fixed object resulting in a fractured finger. |
| 1. Trapped and fractured finger in the trailer side holder while inserting the post. |
| 1. Trapped hand between the traveling block and the swivel resulting in fractured thumb. |
| 1. MVI roll over resulting in a finger tip amputation and fractured fingers. |
| 1. Fatally crushed between two Frac tanks whilst offloading them from prime mover. |
| 1. Crushed and fractured finger between two planks of wood whilst realigning casing. |
| 1. Crushed by a falling lifting cap resulting in fractured finger. |
| 1. Twisted by a drilling machine while drilling resulting in fractured forearm. |
| 1. MVI roll over resulting in fractured arm and shoulder. |

## Incident Classification:

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of Incident causing LTI** | **No of LTIs**  **2015** | **No of LTIs**  **2014** | **% change from**  **2014** |
| Crush/Trapped | 26 | 25 | 4 |
| Slip, Trip, Fall | 8 | 9 | (11) |
| MVI | 6 | 9 | (33) |
| Struck by object | 6 | 8 | (25) |
| Fall from height | 1 | 4 | (75) |
| Chemical/heat burns | 2 | 2 | 0 |
| Electrical Burns | 1 | 0 | 100 |
| Rotating Equipment | 1 | 1 | 0 |
| **Total** | **51** | **58** | **(12)** |

## Actual Severity

|  |  |  |  |
| --- | --- | --- | --- |
|  | | 2015 | 2014 |
| a. | Severity 2 (minor injury) | 2 | 1 |
| b. | Severity 3 (major injury) | 47 | 53 |
| c. | Severity 4 (fatality) | 2 | 4 |

## Potential Severity:

|  |  |  |  |
| --- | --- | --- | --- |
|  | | 2015 | 2014 |
| B3 | Major injury, heard of in the industry | 0 | 2 |
| C3 | Major injury, has happened in the company | 47 | 48 |
| C4 | Fatal injury, has happened in the company | 2 | 1 |
| D2 | Minor injury, has happened more than once a year in the company | 2 | 1 |
| D3 | Major injury, has happened more than once a year in the company | 0 | 4 |
| D4 | PTD or up to 3 fatality, has happened more than once in the industry | 0 | 2 |

## Types of underlying causes:

## Comparison table for the underlying causes:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Underlying Cause** | **2015** | **2014** | **% Change** | **Description of Underlying Cause - Tripod Beta - (Casual Review)** |
| **Training** | 24 | 48 | (50) | Deficiencies in systems providing knowledge and skills |
| **Incompatible Goals** | 25 | 74 | (66) | Failure to manage conflict: between formal rules & informal rules of a work group or between demand of a task and personal preoccupations or distractions. |
| **Communication** | 23 | 49 | (53) | Failure in effectively transmitting information. |
| **Procedures** | 40 | 68 | (41) | Unavailable, incorrect, outdated or otherwise unusable. |
| **Design** | 19 | 36 | (47) | Deficiencies in layout or design of facilities, plant or equipment. |
| **Organisation** | 31 | 24 | (29 | Deficiencies in company structure or way tasks/responsibilities are assigned |
| **Error Enforcing Conditions** | 12 | 49 | (75) | Time pressure, macho behavior, physical working conditions (hot, noisy etc) promoting errors or violations. |
| **Hardware** | 7 | 14 | (50) | Inadequate quality or non availability of materials or equipment. |
| **Maintenance** | 3 | 4 | (25) | Failures in the system for ensuring technical integrity of facilities, plant, equip tools. |
| **Housekeeping** | 6 | 0 | 100 | Failures in systems for reduction of the consequences. |
| **Defences** | 1 | 0 | 100 | Failure in the system for the reduction of the consequences of events. |

## Graph in percentage for the underlying causes - 2015:

## Parts of the body 2015

|  |  |
| --- | --- |
| Hands/Fingers | 23 |
| Wrist | 3 |
| ankle/Foot/Toe | 2 |
| Eyes/Face/Nose | 1 |
| Thumb | 4 |
| Body | 3 |
| Knee/Leg | 6 |
| Pelvis | 1 |
| Head/Neck | 2 |
| Jaw/Teeth | 1 |
| Elbow/Arm | 5 |

## Time of incidents 2015:

|  |  |
| --- | --- |
| 00:00-04:00 | 3 |
| 04:00 -08:00 | 4 |
| 08:00 -12:00 | 22 |
| 12:00 - 16:00 | 8 |
| 16:00 - 20:00 | 8 |
| 20:00 - 00:00 | 6 |

## Age of IP:

|  |  |
| --- | --- |
| 20-25 | 7 |
| 26-30 | 13 |
| 31-35 | 15 |
| 36-40 | 6 |
| 41-45 | 6 |
| 46-50 | 1 |
| 51-60 | 3 |

## General Observations

|  |
| --- |
| * PDOs LTIF rate reduced by 12.5% from 2014 with a similar level of work exposure. |
| * The UWD directorate comprised 71% (37) of PDO LTIs with static figures from 2014 (37). This percentage rose from 64% in 2014. |
| * The OND and GD directorates commendably reduced their LTI incidents to zero joining UEOD, MD and FD with a zero LTI rate for the year. |
| * The OSD directorate was responsible for the majority of PDO LTI reduction (5 of the 7 less incidents). |
| * The UID directorate reduced 11% compared with 2014 but remains the 2nd largest source of LTIs (8). |
| * The CPDM directorate suffered 2 LTIs after being LTI free in 2014. |
| * Hands and Fingers remain the most prevalent body part to suffer injury, increasing by 7% to 47%. The second most prevalent was legs and knees at 12%. |
| * Problems with the guidance or procedures were seen as the most common underlying cause (20%) with the organizational set up (supervision) second (16%). |
| * The most common time of incidents remains between 08:00 and 12:00 (43%) with the rest being fairly evenly split. |
| * The most common age bracket of PDO injured people was the 26-35 year olds (53%), which reflects PDO employment profile. |

# End of Analysis