

# **IRF PERFORMANCE MEASUREMENT PROJECT**

## **Project Goal, Scope, Guidelines, and Definitions**

### **PROJECT GOAL**

To measure and compare offshore safety performance among IRF participants by collecting and comparing incident data based on a common set of criteria.

### **OVERALL SCOPE OF THE DATA TO BE COLLECTED**

- Geographic location: All offshore areas regulated by each country's agency will be included.
- Industry sector:
  - Include oil and gas; include LNG (liquefied natural gas)
  - Exclude sulfur and other minerals
- Operations: Includes all of the following operations:
  - Drilling (exploratory and development)
  - Well completion, workover, and abandonment
  - Production
  - Construction on Offshore Installations when an Installation is located at its offshore location
  - Offshore Installation commissioning, decommissioning, and abandonment
  - Helicopter operations at or near an Offshore Installation
  - Support Vessel and Diving operations (used to construct, maintain, and abandon facilities) that are located at an Offshore Installation
  - Activities related to crew maintenance and support (recreation, cooking, house keeping, etc.)
  - Pipelines and flowlines (including risers) near an Offshore Installation which are not excluded below.
- Exclude Geophysical and Geotechnical surveying and support vessel operations not directly associated with activities at an Offshore Installation.
- Exclude horizontal components associated with incoming and outgoing pipelines and flowlines beyond either the first flange at the seabed near an Offshore Installation or a 500 meter radius, whichever is less.
- Facilities:
  - Includes all fixed and mobile drilling and production facilities when they are located at their offshore location.
  - Includes Accommodation "Flotels" when they are located next to an Offshore Installation and involved in activities supporting the Installation.
  - Includes pipelines or flowlines near an Offshore Installation which are not excluded above.
  - Excludes mobile or floating Offshore Installations being transported to or from the offshore location.
  - Excludes subsea wells and structures.

# **DATA ENTRY GUIDELINES**

## **REPORTING YEAR**

The reporting year is based on the calendar year (January to December).

## **GENERAL GUIDELINE FOR ALL CATEGORIES**

When submitting data, enter “0” when there were no incidents reported and “NA” when the information is not available either because of quality considerations or because it is not required to be reported to your agency.

## **FATALITIES**

- Injuries and Fatalities are counted as the number of casualties rather than the number of incidents.
- The Fatality and Injury categories are not additive. Each Fatality and Injury should be assigned to only one category.
- Fatalities and Injuries associated with Operational Incidents or Gas Releases will be counted both as a Fatality or Injury and as an Operational Incident or Gas Release.
- Include Fatalities and Injuries that occur while the worker is onsite at the Offshore Installation but is off-duty/off-shift.
- Do not include Fatalities and Injuries that occur while commuting to/from work (onshore).
- Do not include Fatalities and Injuries that are self-inflicted.
- Do not include Occupational Illnesses in Fatality or Injury counts.
- Utilize the definitions in the Appendix.

## **HOURS WORKED**

- With two exceptions, the criteria for determining hours worked should parallel the criteria listed on page 1 under “Overall Scope of the Data to be Collected.” The exceptions are that the activities associated with aviation and supply boats/standby vessels are excluded from the total number of hours worked.
- For countries that have available the number of workers instead of hours worked, use an average of 2000 hours per year as a multiplier to calculate the number of hours worked.

## **GAS RELEASES – NUMBER OF RELEASES**

- The Major and Significant categories are not additive. Each incident should be assigned to only one category.
- Include only process-related releases of gas that is being recovered from the reservoir.
- Releases resulting in a Fatality or Injury will be counted here and as a Fatality or Injury.
- Releases associated with Loss of Well Control related to production operations should be included.

- Releases associated with Losses of Well Control related to well activities (drilling, completion, workover, and abandonment) should not be included. These incidents should be included in Losses of Well Control under “Operational Incidents.”
- Any gas release with a rate less than 0.1 kg/sec or an amount less than 1 kg will be excluded.

## GAS RELEASES – AMOUNT OF RELEASES

Enter the total amount of Gas Released in the Major and Significant categories for the Reporting Year noted on the form. For converting gas release volumes to gas release rates, we will use the following formula:

**Gas Release Rate (kg/sec) =**

$$132.52 \times \left(\frac{d}{1000}\right)^2 \sqrt{\text{Gas Density (Kg/m}^3\text{)} \times \text{Operating Pressure (bara)}}$$

where **d = equivalent hole diameter (mm) and gas density is given at the operating pressure.**

## BOE GAS PRODUCTION

Use the following conversion factors to calculate gas production into barrels of oil equivalent (BOE):

1 cubic metre of gas = 35.31 cubic feet of gas

1 cubic feet of gas = 1/5800 barrels of oil equivalent

Hence, 1 cubic metre of gas = 35.31/5800 BOE or **1 million cub metre of gas = 6088 BOE.**

*(From the UK Department of Trade and Industry website)*

## COLLISIONS, FIRES, AND LOSSES OF WELL CONTROL

Enter the total number of Collisions, Fires/Explosions, and Losses of Well Control in the appropriate categories for the Reporting Year (Calendar Year) noted on the form.

- The Major and Less Than Major categories are not additive. Each incident should be assigned to only one category.
- Incidents that involve more than one type (such as: a Collision that causes a Fire; a Gas Release that causes a Fire) should be placed in the category that represents the initiating event.
- Incidents resulting in a Fatality or Injury will be counted here and as a Fatality or Injury.
- Production-related Losses of Well Control should be included under Gas Releases.

Enter the total number of Offshore Installations (MODU’s and Fixed/Floating Structures) and the Total number of well-related activities for the Reporting Year noted on the form. “Offshore

Installations” are defined on in the Appendix. The number of MODUs will be calculated by determining the yearly average of the number of rigs operating offshore each month during the year.

## **WELL-RELATED ACTIVITIES**

The total of the following: 1) the number of new wells spud plus 2) the number of wells re-entered for the purpose of reworking or abandonment during the Reporting Year. Side tracks will only be counted as a separate well when a new bottom hole target is selected for geological reasons.

# **APPENDIX for DEFINITIONS**

## **I. Facility Types**

**Artificial Island** – any man-made island that is constructed solely to produce oil and gas.

**MODU** (Mobile Offshore Drilling Unit) – a vessel that is capable of drilling operations for exploration or exploitation of subsea resources.

**Offshore Installation** – any artificial island, installation, or other device permanently or temporarily attached to the seabed, erected for the purpose of exploring for, developing, producing, or transporting resources from offshore waters. This includes Floating Storage Units (FPS) and Floating Production, Storage, and Offtake (FPSO) Units. Offshore Installations do not include pipelines or flowlines beyond either the first flange at the seabed or a 500 meter radius of a facility, whichever is less, or ships and vessels used to transport produced hydrocarbons. A Mobile Offshore Drilling Unit (MODU) is an Offshore Installation when it is located onsite and engaged in operations.

## **II. Injury Types**

**Fatality** – any work-related death that occurs within one year after the incident.

- Includes missing persons.

- Does not include fatalities that are due to natural causes.

**First Aid Injury** – cases that are not sufficiently serious to be reported as medical treatment or more serious cases but nevertheless require minor first aid treatment, e.g. dressing on a minor cut, removal of a splinter from a finger. *(From International Association of Oil and Gas Producers) - OGP - definition of First Aid Case – slightly modified)*

**Lost Workday Injury** – any work-related injury other than a “Major Injury” which results in a person being unfit for work on any day after the day of occurrence of the injury. Any day includes rest days, weekend days, leave days, public holidays, or days after ceasing employment. *(From OGP definition of Lost Workday Case – slightly modified)*

**Major Injury** – any work-related injury that results in one or more of the following:

- Amputation: Includes whole or partial amputation of parts of the body (does not include loss of fleshy tip of finger, nail, or tooth).
- Skeletal injuries: Includes bone fractures (including chipped or cracked bone or hairline fracture) and dislocation of shoulder, hip, knee or spine. Does not include simple hairline fractures or fractures to fingers, thumbs, toes, or broken nose.
- Burns: Only if the injured person becomes unconscious, is admitted to the Hospital, or requires resuscitation.
- Injuries to internal organs: Only if the injured person becomes unconscious, is admitted to the Hospital, or requires resuscitation.
- Eye injuries resulting in loss of sight (permanent or temporary).
- Eye injuries resulting from a penetrating eye injury or a chemical or hot metal burn to the eye.
- Any acute illness caused by exposure to harmful chemicals or biological agents and physiological effects e.g. decompression illness, loss of hearing, and radiation sickness.
- Hypothermia or heat induced illness (unconsciousness).
- Any injury resulting in unconsciousness, resuscitation, or admittance to the Hospital.

*(Developed from HSE and PSA Requirements)*

**Medical Treatment Injury** – cases that are not severe enough to be reported as lost workday cases or restricted workday cases but are more severe than requiring simple first aid treatment.

*(From OGP Definition of Medical Treatment Case – slightly modified)*

**Occupational Illness** – any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. Occupational illness may be caused by inhalation, absorption, ingestion of, or direct contact with the hazard, as well as exposure to physical and psychological hazards. It will generally result from prolonged or repeated exposure. *(From OGP definition of occupational illness – modified)*

**Restricted Workday Injury** – any work-related injury other than a “Major Injury” which results in a person being unfit for full performance of the regulator job on any day after the occupational injury. Work performed might be: an assignment to a temporary job; part-time work at the regular job; or working full-time in the regular job but not performing all the usual duties of the job. Where no meaningful work is being performed, the incident should be recorded as a lost workday case. *(From OGP definition of Restricted Work Case – slightly modified)*

**Work-Related (occupational) Injury** – any injury which results from a work accident or from a single instantaneous exposure in the work environment. Conditions resulting from animal bites, such as insect or snake bites, and from one-time exposure to chemicals are considered to be injuries. Injuries and fatalities that occur while the worker is onsite at the Offshore Installation, but off duty/off-shift are included. Self-inflicted injuries or fatalities are not included. *(From OGP definition of occupational injury – modified to add clarifying statements about off-shift and self-inflicted injuries)*

### **III. Other Incident Types**

**Gas Release** – An unintentional or uncontrolled release of hydrocarbon gas on or from an “Offshore Installation.” This does not include releases that result from processes designed into the production and processing systems to respond to upset conditions.

- A MAJOR gas release is one where either the release rate is above 1 kg/sec for at least 5 minutes (300 sec) duration or the amount is greater than 300 kg.
- A SIGNIFICANT gas release is one where either the release rate is between 0.1 kg/sec and 1 kg/sec and lasts for 2 to 5 minutes or the amount is between 1 kg and 300 kg.

**Loss of Well Control** – any incident associated with drilling, completion, workover, or abandonment operations and that is either:

- An uncontrolled release of formation or other well fluids. The flow may be between two or more exposed formations or it may be at or above the mudline. This includes uncontrolled flow resulting from failures of either surface or subsurface equipment or procedures or
- A flow of formation or other well fluids through a diverter.

**Less than Major Incidents** – include:

- Collisions, fires, explosions or losses of well control that are not classified as Major and that result in one or more of the following:
  - an injury resulting in 1 or more lost or restricted work days;
  - damage to an Offshore Installation, vessel, or helicopter that is judged to have had the potential to result in a Fatality or Major Injury;
  - damage to an offshore installation, vessel, or helicopter that leads to a distress call and/or abandonment;
  - damage that significantly compromised the ongoing integrity (from a safety, environmental, or resource conservation perspective) of the Offshore Installation, vessel, or helicopter if it were to have continued in operation without immediate repair.
  - liquid spills between 1 bbl and 50 bbl into the water.
- All Losses of Well Control where the duration of the uncontrolled or diverted flow is between 5 minutes and 24 hours.

**Major Incidents** – include one or more of the following:

- Collisions, fires, explosions, or losses of well control that result in:
  - a Fatality or Major Injury or
  - the loss of the installation (including motor vessels and helicopters) or
  - damage to an Offshore Installation resulting in shut-in for 72 hours or more.
- Liquid releases to the environment of 50 bbl or greater.
- Losses of Well Control where the duration of the uncontrolled or diverted flow > 1 day (24 hours).