NOPSEMA
Australia's offshore energy regulator

GUIDANCE NOTE

Notification, reporting and recording requirements for well-related incidents

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Background

Part 5, Division 8 of the Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011 covers notification, reporting and recording requirements in relation to well-related incidents.

Reportable incidents in relation to a well in a title area must be notified to NOPSEMA in accordance with regulations 5.26 and 5.26A, which state the following:

Part 5: Incidents, reports and records

Reg 5.26 Notifying reportable incident

(1) A titleholder commits an offence if:
  (a) there is a reportable incident in relation to a well in the title area; and
  (b) the titleholder does not give notice of the reportable incident to the regulator in accordance with subregulation (3).
  Penalty: 80 penalty units.

(2) An offence against subregulation (1) is an offence of strict liability.
Note: For strict liability, see section 6.1 of the Criminal Code.

(3) The notice:
  (a) must be given to the regulator as soon as practicable after:
    (i) the first occurrence of the reportable incident; or
    (ii) if the reportable incident was not detected by the titleholder at the time of the first occurrence—the time the titleholder becomes aware of the reportable incident; and
  (b) must be given orally; and
  (c) must contain:
    (i) all material facts and circumstances concerning the reportable incident that the titleholder knows or is able, by reasonable search or enquiry, to find out; and
    (ii) any action taken, or proposed to be taken, to stop, control or remedy the reportable incident.

Reg 5.26A Written report of reportable incident

(1) A titleholder commits an offence if:
  (a) there is a reportable incident in relation to a well in the title area; and
  (b) the titleholder does not give a written report of the reportable incident to the Regulator in accordance with subregulation (3).
  Penalty: 80 penalty units.

(2) An offence against subregulation (1) is an offence of strict liability.
Note: For strict liability, see section 6.1 of the Criminal Code.

Part 5: Incidents, reports and records (continued)

Reg 5.26A Written report of reportable incident

(3) The report:

(a) must be given to the regulator:

(i) not later than three days after the first occurrence of the reportable incident; or

(ii) if the reportable incident was not detected by the titleholder at the time of the first occurrence—not later than three days after the time the titleholder becomes aware of the reportable incident; or

(iii) if the regulator agrees to another period within which the report must be provided—within that period; and

(b) must contain:

(i) all material facts and circumstances concerning the reportable incident that the titleholder knows or is able, by reasonable search or enquiry, to find out; and

(ii) any action taken, or proposed to be taken, to stop, control or remedy the reportable incident; and

(iii) any action taken, or proposed to be taken, to prevent a similar incident occurring in the future.

Intent and purpose

The purpose of this document is to provide guidance on:

- what is a reportable incident in relation to a well
- how to report an incident to NOPSEMA
- record keeping requirements
- classification of well-related incidents.

Definition of reportable incident

A reportable incident in relation to a well is defined by regulation 5.02:

Reg 5.02 definitions

Reportable incident, in relation to a well, means any of the following:

(a) A loss of integrity of the well, including a well kick, resulting in a release of more than 1 kilogram (1kg) of gas or 80 litres of liquid;

(b) A failure of hydrostatic pressure as a primary barrier, leading to a build-up of pressure or a positive flow back; and the operation of a blowout prevention or diversion system;

(c) Damage to, or failure of, well-related equipment that has led or could lead to a loss of integrity of the well;

(d) Any other unplanned occurrence that requires the titleholder to implement measures or

Further details and examples of each of the categories of reportable incidents are provided below. If an incident is reported that did not need to be reported, it merely gets re-categorised as 'for information only'.

(a) A loss of integrity of the well, including a well kick, resulting in a release of more than 1 kilogram (1kg) of gas or 80 litres of liquid

Any well incident resulting in a total release in excess of 1kg of gas or 80 litres of liquid to the environment should be reported under this category.

(b) A failure of hydrostatic pressure as a primary barrier, leading to a build-up of pressure or a positive flow back; and the operation of a blowout prevention or diversion system

This category is for an influx or 'kick' from the formation during drilling, completion or workover activities. Note that a well kick in excess of 50 barrels also needs to be reported as a safety incident.

The closure of a blowout preventer alone does not constitute a reportable incident, unless accompanied by failure of hydrostatic pressure. For example, if the BOP is closed to allow diagnostics in the event of wellbore ballooning/breathing, this does not need to be reported.

(c) Damage to, or failure of, well-related equipment that has led or could lead to a loss of integrity of the well

Well-related equipment is defined in the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act) as:

(a) plant; or

(b) equipment; or

(c) other thing; for containing pressure in a well.

In relation to well integrity, such equipment would generally be pressure-containing equipment relating to the barrier envelope of a well in any of the stages of its life cycle.

Examples of reportable well-related incidents in this category include:

- a leak from a well below the threshold for 5.02(a)
- failure of christmas tree valve(s) or a subsurface safety valve (SSSV) to meet acceptance criteria
- a well barrier failure such as a casing, tubing, packer or tubing hanger leak
- leak from a SSSV control line
- leak through a gas lift / side pocket mandrel accessory.

(d) Any other unplanned occurrence that requires the titleholder to implement measures or arrangements to regain control of the well

Examples of reportable well-related events in this category include:

- bullheading an influx into the formation
- a 'lubricate and bleed' well kill measure
- any other unconventional well control measure

- inadvertent activation of a surface well control device.

Verbal notification of a reportable incident

Titleholders must make a verbal notification of a reportable incident to NOPSEMA, via the dedicated

NOPSEMA incident phone number 1300 674 472 as soon as practicable after the reportable incident. In this context 'as soon as practicable' includes having due regard to any immediate emergency response necessary. This verbal notification must contain:

i. All available material facts and circumstances concerning the reportable incident

ii. Any action taken, or proposed to be taken, to stop, control or remedy the reportable incident.

Written report of reportable incident

All reports provided to NOPSEMA must be submitted to: **submissions@nopsema.gov.au**

or via secure file transfer at: **https://securefile.nopsema.gov.au/filedrop/submissions**

The titleholder must submit the report no later than three days after the first occurrence of the reportable incident and may use the NOPSEMA report form (N-03000-FM1635) available from the NOPSEMA website.

The report must contain:

i. All material facts and circumstances concerning the reportable incident that the titleholder knows or is able, by reasonable search or enquiry, to find out

ii. Any action taken to, or proposed to be taken, to stop, control or remedy the reportable incident

iii. Any other action taken or proposed to be taken, to prevent a similar incident occurring in the future

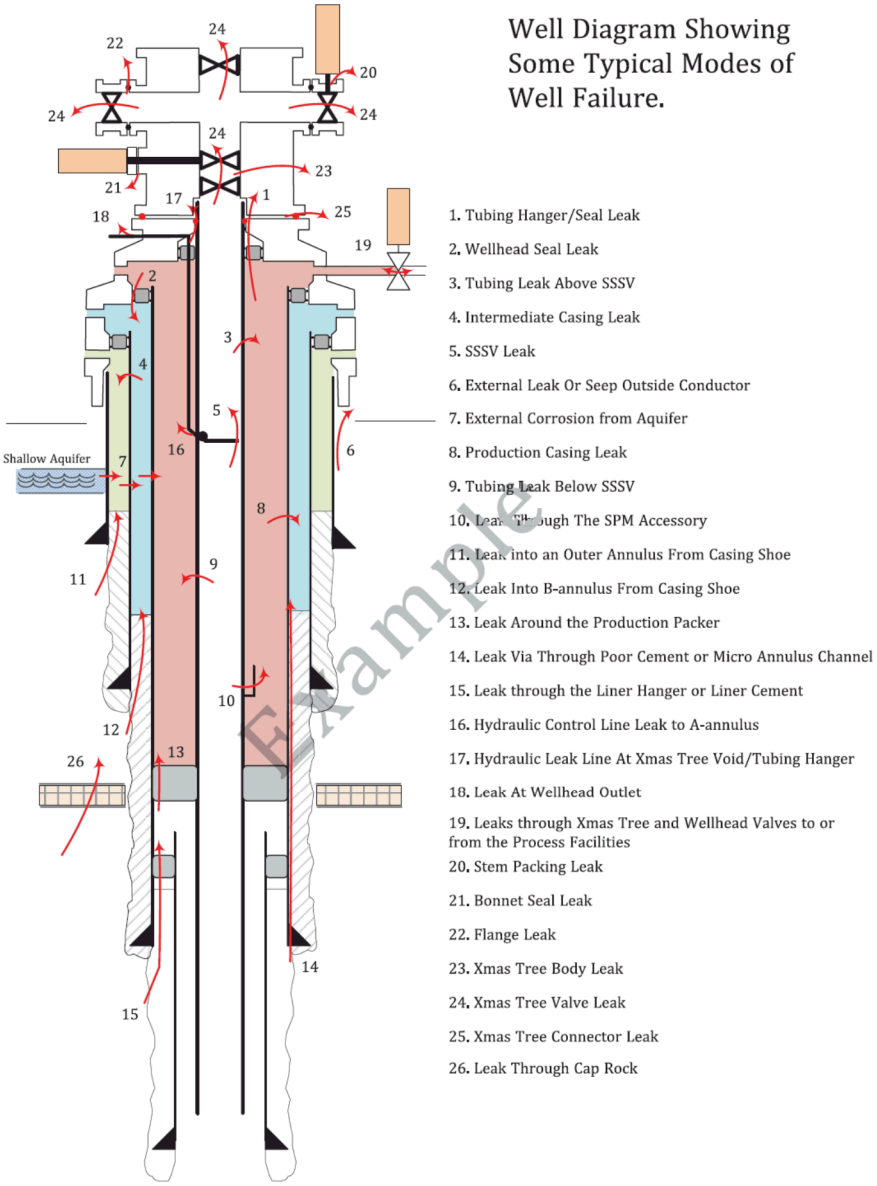
However, if the titleholder has been unable to identify all the material facts and circumstances and remedial actions to be taken within three days, the initial report must nevertheless be submitted with the information available at that time. Subsequently, a final report must be submitted within a time period agreed with NOPSEMA.

Streamlined reporting using a well failure model (optional)

If a titleholder has a well failure model (described in ISO/TS 16530-1:2017 Well Integrity – Life Cycle Governance), it can be summarised in the titleholder's WOMP and then used to streamline the reporting of well-related incidents to NOPSEMA.

A well failure model is a matrix that identifies the most common modes of well failure and specifies the associated action plan and response period. Figure 1 below shows an example of possible well leak paths for production wells. This type of information can be included in a WOMP in conjunction with the action(s) that will be taken in response to the leak or failure. The titleholder can then quote the number of the well failure/issue when notifying NOPSEMA about a reportable incident.

Figure 1: Example of possible well leak paths (Annex Q, ISO 16530-1:2017)



Record-keeping

Regulation 5.26B (as follows) indicates that the titleholder must keep a copy of the written report for at least five years.

Part 5: Incidents, reports and records

Reg 5.26B Titleholder must keep copy of report

(1) A titleholder commits an offence if the titleholder does not store a copy of a written report given to the Regulator under regulation 5.26A in a way that makes retrieval of the report reasonably practicable.
Penalty: 30 penalty units.

(2) An offence against subregulation (1) is an offence of strict liability.
Note: For strict liability, see section 6.1 of the Criminal Code

(3) Subregulation (1) does not apply if the report was given to the regulator more than five years ago.

Classification of well-related incidents (for information only)

Titleholders have their own incident classification systems and are not required to inform NOPSEMA of the classification level when reporting an incident. However, NOPSEMA supports alignment with the four-tier process safety framework outlined in American Petroleum Institute (API) RP 754 and International Oil and Gas Producers (IOGP) 456 as it allows titleholders to share information about the severity of incidents in an internationally recognised format. Thus, an overview of the API/IOGP framework is provided in this guidance note.

API RP 754 and IOGP Report 456 describe the same international four-tier framework for process safety key performance indicators and incident classification, with the latter publication tailored to the upstream oil and gas industry.

The four tiers of the pyramid shown in Figure 2 represent a continuum of leading and lagging process safety indicators, as indicated by the arrows. The same event can sometimes be considered *both* a leading and lagging indicator. For example, a well kick (a Tier 3 event) is a lagging event as well fluid has entered the wellbore due to a barrier failure, but at the same time, a gas kick is a leading indicator for a possible blowout (Tamim, N., 2017). Similarly, a Tier 2 event can be a leading indicator for a Tier 1 event.

Individual organisations or assets select their own suitable set of leading performance indicators to measure and track.

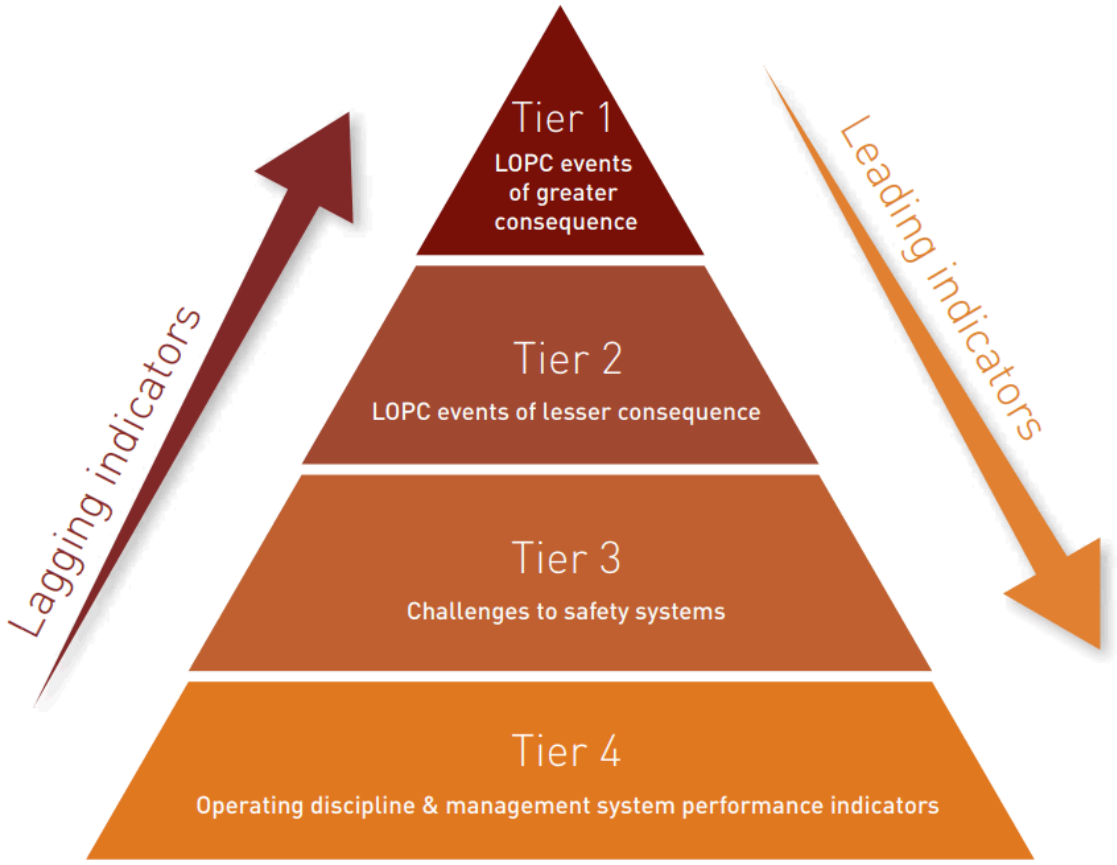


Figure 2: Process safety indicator pyramid (from IOGP 2018p, IOGP 456 and API RP 754)

The four tiers for process safety events (PSE) can be described as follows (as relevant to well-related incidents):

Tier 1: Loss of primary containment of greater consequence

An unplanned or uncontrolled material release that exceeds the threshold volume for Tier 1 in any one hour period. Threshold volumes are provided in Tables E4 – E6 of IOGP 456 or Table 1 of API RP 754.

Tier 2: Loss of primary containment of lesser consequence

An unplanned or uncontrolled material release that exceeds the threshold volume for Tier 2 in any one hour period. Threshold volumes are provided in Tables E4 – E6 of IOGP 456 or Table 1 of API RP 754.

Tier 3: Challenges to safety systems

The role of Tier 3 KPIs is to proactively track and identify the weaknesses of barriers and then eliminate or minimise these defects. As outlined in OGP Report 456, Tier 3 includes the following process safety events:

- loss of primary containment resulting in a material release below the threshold for Tier 2
- one or more barriers or supporting systems failed or did not function as expected.

Well-related examples of Tier 3 events:

- Blowout preventer test failure

- subsurface safety valves or Christmas tree valves not meeting acceptance criteria
- a single barrier failure in a production well e.g. tubing to production annulus communication
- for drilling operations: Loss of circulation, loss of drilling mud, well kick or underground blowout where there has not been an associated material release above seabed or onto rig floor.

Tier 4: Operating discipline and management system performance indicators

The role of Tier 4 indicators is to measure management system assurance processes to assess whether specific barriers are being maintained as intended.

Tier 4 indicators proactively measure the asset's efforts to maintain and improve the completeness, integrity, strength or quality of barriers.

Well-related examples of Tier 4 indicators:

- Percentage completion of routine well integrity testing
- number of management of change forms per well
- number of extensions to the response period in a well failure model.

Well control incident levels in IOGP Report 456

The 2018 revision of IOGP Report 456 contains an alternative classification system for well control incidents (WCI) that is applicable to drilling, completion and well work operations only. The WCI levels are not intended for production or injection operations, even though well control events can also occur during these phases of the well lifecycle. The well control classification system is described in further detail in IOGP Report 2017su. A summary of the WCI classification system, including a mapping to the PSE tiers, is provided in Table 1 below.

Table 1: Summary of IOGP 'well control incident' levels

WCI Level	Definition	Corresponding PSE Tier
WCI Level 1	Uncontrolled flow or formation or other fluids resulting in seabed or surface release, or	PSE Tier 1 or 2 depending on release type and volume
	Underground communication to another formation or well	PSE Tier 3
WCI Level 2	One barrier system with the well design failed and other barrier system(s) either failed or were challenged beyond design capacity resulting in an influx without uncontrolled flow	PSE Tier 3
WCI Level 3	A single barrier system within the well design failed resulting in an influx while other barrier systems performed as designed without uncontrolled flow	PSE Tier 3
WCI Level 4	Operating discipline and management system indicators	PSE Tier 4

Critical factors for success

A reportable incident (as defined in regulation 5.02) is verbally notified to NOPSEMA as soon as practicable after the occurrence and followed up with a written report using form (N03000-FM1635) within three days of the occurrence and if applicable a final report in a timeframe agreed with NOPSEMA.

References

OPGGS (Resource Management and Administration) Regulations 2011, compiled 1 January 2016

IOGP Report 456 (2018), *Process safety – Recommended practice on Key Performance Indicators*

IOGP Report 2018p (2019), *Safety performance indicators – Process safety events – 2018 data*

IOGP Report 2017su (2017 data), *Safety data reporting user guide – Scope and definitions*

API RP 754 (2017), *Process Safety Performance Indicators for the Refining and Petrochemical Industries*

ISO 16530:1:2017, *Petroleum and natural gas industries – Well integrity – Part 1: Life cycle governance*

Chajai, H. & Smith, C. (2014). *Defining and Improving Process Safety for Drilling and Well Services Operations*, IADC/SPE 167946

Tamim, N. et al (2017). *A framework for developing leading indicators for offshore drillwell blowout incidents*, Process Safety and Environmental Protection 106 (2017) 256-262

Contact details

For more information regarding this guidance note, contact NOPSEMA.

Telephone: +61 (0)8 6188 8700; or
E-mail: submissions@nopsema.gov.au