

# Collabor8 Subsurface production and drilling reporting business validation rules



The Norwegian Oil and Gas Association is an employer and industry association for oil companies and supplier firms engaged in the activities on the Norwegian Continental Shelf. The Norwegian Oil and Gas Association is affiliated with the Confederation of Norwegian Business and Industry, NHO.

P.O. Box 8065, 4068 Stavanger. [www.norskoljeoggass.no](http://www.norskoljeoggass.no)

## TABLE OF CONTENTS

TABLE OF CONTENTS.....	2
1 BACKGROUND.....	4
2 PRODUCTION BASE VALIDATION RULES.....	4
2.1 Report object.....	4
2.1.1 Report title .....	4
2.1.2 Report version .....	4
2.1.3 Report status .....	5
2.1.4 Installation .....	5
2.2 Production volume object.....	5
2.2.1 Name.....	5
2.2.2 Installation .....	6
2.2.3 Facility Name.....	6
2.2.4 Flow uid.....	6
3 DAILY PRODUCTION REPORT VALIDATION RULES.....	7
3.1 Daily production 1.0 report validation rules .....	7
3.2 Daily production 2.0 report validation rules .....	7
3.2.1 Report date .....	7
4 MONTHLY PRODUCTION REPORT TO THE GOVERNMENT VALIDATION RULES .....	7
4.1 Report object.....	7
4.1.1 Report month.....	7
4.1.2 Preliminary or final report .....	8
4.2 NPD Diskos common schematron rules .....	8
4.2.1 Facility name and flow .....	8
4.2.2 Facility name .....	9
4.2.3 Facility flow – kind, qualifier and product.....	9
4.2.4 Flow kind .....	9
4.2.5 Product kind and period.....	10
4.2.6 Valid product kinds.....	10
4.2.7 Valid facility name kinds.....	11
4.2.8 Operation time.....	11
4.2.9 Period .....	11
4.2.10 Common volume, mass, density and work rule .....	12
4.2.11 Tanker lifting balanceset.....	12
4.2.12 Tanker lifting destination name .....	12
4.2.13 Tanker lifting destination country name .....	13
4.2.14 Tanker lifting balancedetail owner name.....	13
4.2.15 Tanker lifting balancedetail share.....	14
4.2.16 Tanker lifting cargo total share .....	14
4.2.17 Volume value .....	15
4.2.18 Mass.....	15
4.2.19 Density .....	16
4.3 Monthly production report to partners.....	16

5 DRILLING VALIDATION RULES .....	16
5.1 Drilling base validations rules .....	16
5.1.1 Wellbore alias name (wellbore code) .....	17
5.1.2 Wellbore alias code (wellbore number) .....	17
5.1.3 Wellbore name and id .....	17
5.1.4 Wellbore operator .....	18
5.1.5 Rig alias name .....	18
5.1.6 Rig alias name and code combined .....	18
5.2 Government drilling validation rules .....	19
5.2.1 Rig alias code .....	19
6 NOT VALIDATED .....	19

## 1 BACKGROUND

The following document **describes** validation rules for daily and monthly production reporting and drilling reporting that are not covered as part of normal xml schema validation (e.g. validate that a name of a wellbore is according to the fact pages). These rules are implemented as part of the Collabor8 Subsurface solution and as part of the Diskos NPD validation **regime**.

## 2 PRODUCTION BASE VALIDATION RULES

This section describes validation rules that are common for the production report types: DPR 2.0, MPRML Gov and MPRML Partner.

### 2.1 Report object

#### 2.1.1 Report title

The report title should be registered in advance in Collabor8 Subsurface to be able to upload data. In addition, the report title does not need to follow the official naming on the NPD FactPages as e.g. assets with double names e.g. OSEBERG ØST cannot be read on the NPD side as they rely on processing rules files with the same name as the asset and they cannot handle spaces in the filename, hence in this case it would be registered with a hyphen (see figure below)

```

10      </Event>
11      </AuditTrail>
12      </documentInfo>
13      <context xsi:type="obj_report">
14        <kind>MPRML</kind>
15        <title namingSystem="NPD">OSEBERG-ØST</title>
16        <month>2015-01</month>
17        <year>2015</year>
18        <reportVersion>1.1</reportVersion>
19        <reportStatus>preliminary</reportStatus>
20        <installation kind="field" namingSystem="NPD" uidRef="43639">OSEBERG ØST</installation>
21      </context>
22      <object xsi:type="obj_productVolume">
23        <name>OSEBERG ØST</name>
24        <installation kind="field" namingSystem="NPD" uidRef="43639">OSEBERG ØST</installation>
25        <facility>
26          <name kind="platform" namingSystem="NPD" uidRef="277489">OSEBERG ØST</name>
27          <flow uid="PLATFORM_OSEBERGØST_CONSUME_FLARE_ALLOCATED">
28            <name>PLATFORM_OSEBERGØST_CONSUME_FLARE_ALLOCATED</name>
29            <kind>consume - flare</kind>

```

In addition, the report title is used to handle merging data back when multiple files have been uploaded with different data for the same asset, e.g. one file with field data and one with well data.

#### 2.1.2 Report version

The report version is required (optional in xml schema).

```

<context xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="obj_report">
  <kind>DPR 2.0</kind>
  <title>HULDRA</title>
  <date>2012-05-01</date>
  <reportVersion>1.3</reportVersion>
  <reportStatus>preliminary</reportStatus>
  <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
</context>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="obj_productVolume">

```

### 2.1.3 Report status

The report status is required (optional in xml schema).

```
<context xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="obj_report">
  <kind>DPR 2.0</kind>
  <title>HULDRA</title>
  <date>2012-05-01</date>
  <reportVersion>1.3</reportVersion>
  <reportStatus>preliminary</reportStatus>
  <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
</context>
```

### 2.1.4 Installation

The report installation element is validated to ensure that the uidRef attribute and the actual name of the given asset is according to the NPD FactPages. The uidRef attribute should represent the NPD FactPages id for that given id, hence if a field is specified the uidRef attribute need to represent the NPD id of the field that is named in the text element (in this example HULDRA). The text element needs to be according to the NPD FactPages and the specified installation kind attribute, e.g. in this case the kind=field hence the FactPages validation will ensure that there is a field with the name HULDRA and the id as specified in the uidRef attribute. If e.g. field – group is specified this is equal to a gathering facility entity, hence in the case of Åsgard the field group is used to specify the stock for all entities producing into the main facility and as such the name should be validated against the field ÅSGARD in the fact pages.

```
<?xml version="1.0" encoding="UTF-8"?>
<objects xmlns="http://www.epim.no/schemas/mprml/1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.0(MPRML)">
  <documentInfo>
    <context xsi:type="obj_report">
      <kind>MPRML</kind>
      <title namingSystem="NPD">HULDRA</title>
      <month>2011-04</month>
      <year>2011</year>
      <reportVersion>1.1</reportVersion>
      <reportStatus>preliminary</reportStatus>
      <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
    </context>
  <object xsi:type="obj_productVolume">
  </objects>
```

## 2.2 Production volume object

### 2.2.1 Name

The name element is required in Collabor8 Subsurface.

```
</context>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="obj_productVolume">
  <name>HULDRA</name>
  <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
  <facility>
</object>
```

## 2.2.2 Installation

The installation element is validated according to the same rules as the installation element under the report context object ([Installation](#)).

```
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="obj_productVolume">
  <name>HULDRA</name>
  <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
  <facility>
    <name kind="platform" namingSystem="NPD" uidRef="277573">HULDRA</name>
    <flow uid="PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED_DAY">
  </facility>
</object>
```

## 2.2.3 Facility Name

The production volume facility name element is validated so that the uidRef and the text content represents an asset that is valid according to the NPD FactPages. The uidRef attribute should represent the NPD id of the asset that is specified as text content of the element. The facility name element will be validated for all entities of the kind: field, field – group, wellbore, platform, terminal.

```
<?xml version="1.0" encoding="UTF-8"?>
<objects xmlns="http://www.epim.no/schemas/mprml/1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.0">
  <documentInfo>
    <context xsi:type="obj_report">
      <kind>MPRML</kind>
      <title namingSystem="NPD">HULDRA</title>
      <month>2011-04</month>
      <year>2011</year>
      <reportVersion>1.2</reportVersion>
      <reportStatus>preliminary</reportStatus>
      <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
    </context>
    <object xsi:type="obj_productVolume">
      <name>HULDRA</name>
      <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
      <facility>
        <name kind="platform" namingSystem="NPD" uidRef="277573">HULDRA</name>
        <flow uid="PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED">
      </facility>
    </object>
  </objects>
```

## 2.2.4 Flow uid

The flow uid need to be specified and preregistered in Collabor8 Subsurface (this happens automatically when a report is uploaded).

```

</context>
<object xsi:type="obj_productVolume">
  <name>HULDRA</name>
  <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
  <facility>
    <name kind="platform" namingSystem="NPD" uidRef="277573">HULDRA</name>
    <flow uid="PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED">
      <name>PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED</name>
      <kind>consume - fuel</kind>
      <qualifier>allocated</qualifier>
      <product>
      </flow>
    </facility>
  </object>

```

### 3 DAILY PRODUCTION REPORT VALIDATION RULES

#### 3.1 Daily production 1.0 report validation rules

The daily production report 1.0 is only using xml schema validation.

#### 3.2 Daily production 2.0 report validation rules

This section contains validation rules that are specific to only DPR 2.0 reports.

##### 3.2.1 Report date

The report date element is required and should reflect the production day that the report represents.

```

<context xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="obj_report">
  <kind>DPR 2.0</kind>
  <title>HULDRA</title>
  <date>2012-05-01</date>
  <reportVersion>1.3</reportVersion>
  <reportStatus>preliminary</reportStatus>
  <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
</context>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="obj_productVolume">

```

### 4 MONTHLY PRODUCTION REPORT TO THE GOVERNMENT VALIDATION RULES

#### 4.1 Report object

##### 4.1.1 Report month

This element is optional according to the xml schema due to that it is not used for daily production reporting. This existence of this element is validated by Collabor8 Subsurface and Diskos.

```

<?xml version="1.0" encoding="UTF-8"?>
<objects xmlns="http://www.epim.no/schemas/mprml/1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.0(MPRML)">
  <documentInfo>
    <context xsi:type="obj_report">
      <kind>MPRML</kind>
      <title namingSystem="NPD">HULDRA</title>
      <month>2011-04</month>
      <year>2011</year>
      <reportVersion>1.4</reportVersion>
      <reportStatus>preliminary</reportStatus>
      <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
    </context>
    <object xsi:type="obj_productVolume">
      <name>HULDRA</name>
      <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
      <facility>
      </facility>
    </object>
  </objects>

```

### 4.1.2 Preliminary or final report

The reportStatus element is optional according to the schema, but it is required for monthly governmental reporting.

If the previously stored report had a status of preliminary, the newly submitted report needs to have a higher version number and the reportStatus can be either preliminary or final.

If the previously store report had a status of final, the newly submitted reports needs to have a higher version number and the reportStatus needs to be final. When a final report has been submitted it cannot be overwritten by a preliminary report or a report with the same status and same version number.

```

<?xml version="1.0" encoding="UTF-8"?>
<objects xmlns="http://www.epim.no/schemas/mprml/1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.0(MPRML)">
  <documentInfo>
    <context xsi:type="obj_report">
      <kind>MPRML</kind>
      <title namingSystem="NPD">HULDRA</title>
      <month>2011-04</month>
      <year>2011</year>
      <reportVersion>1.1</reportVersion>
      <reportStatus>preliminary</reportStatus>
      <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
    </context>
    <object xsi:type="obj_productVolume">
    </object>
  </objects>

```

## 4.2 NPD Diskos common schematron rules

The following section outlines validation rules that are enforced as common rules on the NPD Diskos side where they are validated through a general schematron file that is common for all fields. In addition, there exists field specific validation rules which are not described here.

### 4.2.1 Facility name and flow

The NPD common schematron rules will verify that a facility objects has a name and at least one associated flow element. According to the MPRML schemas, facility name is a required element.



```
<objects xmlns="http://www.epim.no/schemas/mprml/1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.0(MPRML)">
  <documentInfo>
    <context xsi:type="obj_report">
      <object xsi:type="obj_productVolume">
        <name>HULDRA</name>
        <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
        <facility>
          <name kind="platform" namingSystem="NPD" uidRef="277573">HULDRA</name>
          <flow uid="PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED">
            <name>PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED</name>
            <kind>consume - fuel</kind>
            <qualifier>allocated</qualifier>
            <product>
              <kind>diesel</kind>
              <period>
                <start>2014-01-01</start>
                <end>2014-12-31</end>
              </period>
            </product>
          </flow>
        </facility>
      </object>
    </context>
  </documentInfo>
</objects>
```

## 4.2.2 Facility name

The NPD common schematron rules will verify that the facility name element has a kind attribute specified, has a uidRef element specified and a namingSystem attribute that is equal to "NPD"

```
<facility>
  <name kind="platform" namingSystem="NPD" uidRef="277573">HULDRA</name>
  <flow uid="PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED">
    <name>PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED</name>
    <kind>consume - fuel</kind>
    <qualifier>allocated</qualifier>
    <product>
      <kind>diesel</kind>
      <period>
        <start>2014-01-01</start>
        <end>2014-12-31</end>
      </period>
    </product>
  </flow>
</facility>
</object>
</objects>
```

## 4.2.3 Facility flow – kind, qualifier and product

The NPD common schematron rules will verify that a flow element has the sub elements; kind, qualifier and product.

```
<objects xmlns="http://www.epim.no/schemas/mprml/1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1.0(MPRML)">
  <documentInfo>
    <context xsi:type="obj_report">
      <object xsi:type="obj_productVolume">
        <name>HULDRA</name>
        <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
        <facility>
          <name kind="platform" namingSystem="NPD" uidRef="277573">HULDRA</name>
          <flow uid="PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED">
            <name>PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED</name>
            <kind>consume - fuel</kind>
            <qualifier>allocated</qualifier>
            <product>
              <kind>diesel</kind>
              <period>
                <start>2014-01-01</start>
                <end>2014-12-31</end>
              </period>
            </product>
          </flow>
        </facility>
      </object>
    </context>
  </documentInfo>
</objects>
```

## 4.2.4 Flow kind

The NPD common schematron rules will validate that the flow kind element only can contain one of the following options: production, injection, consume – flare, consume – fuel, consume – venting, inventory, hydrocarbon accounting, sale, import.

```

<?xml version="1.0" encoding="UTF-8"?>
<objects xmlns="http://www.epim.no/schemas/mprml/1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1"
  <documentInfo>
  <context xsi:type="obj_report">
  <object xsi:type="obj_productVolume">
    <name>HULDRA</name>
    <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
    <facility>
      <name kind="platform" namingSystem="NPD" uidRef="277573">HULDRA</name>
      <flow uid="PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED">
        <name>PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED</name>
        <kind>consume - fuel</kind>
        <qualifier>allocated</qualifier>
        <product>
          <kind>diesel</kind>
          <period>
        </product>
      </flow>
    </facility>
  </object>
</objects>

```

#### 4.2.5 Product kind and period

The NPD common schematron rules will validate that there is a product kind and period element specified.

```

<objects xmlns="http://www.epim.no/schemas/mprml/1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="1"
  <documentInfo>
  <context xsi:type="obj_report">
  <object xsi:type="obj_productVolume">
    <name>HULDRA</name>
    <installation kind="field" namingSystem="NPD" uidRef="97002">HULDRA</installation>
    <facility>
      <name kind="platform" namingSystem="NPD" uidRef="277573">HULDRA</name>
      <flow uid="PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED">
        <name>PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED</name>
        <kind>consume - fuel</kind>
        <qualifier>allocated</qualifier>
        <product>
          <kind>diesel</kind>
          <period>
            <kind>month</kind>
            <dateStart>2011-04-01</dateStart>
            <dateEnd>2011-04-30</dateEnd>
          </period>
        </product>
      </flow>
    </facility>
  </object>
</objects>

```

#### 4.2.6 Valid product kinds

The validation will check that the product kinds that are specified are in the below list:

- oil – net
- gas
- diesel
- oil – gross
- condensate – gross
- water
- condensate – net
- gas – rich
- gas – wet

- gas – dry
- liquified natural gas
- naphta
- ethane
- isobutane
- propane
- liquified petroleum gas
- natural gas liquid
- cuttings
- crude – stabilized
- carbon dioxide gas
- normal butane
- mixed butane
- butane
- gasoline

#### 4.2.7 Valid facility name kinds

The validation will verify that the facility/name/@kind is in the specified list below:

- field
- platform
- field – group
- well
- wellbore
- terminal
- installation

#### 4.2.8 Operation time

The validation will verify that operation time for a wellbore not exceeds 31 days.

```
<facility>
  <name kind="wellbore" namingSystem="NPD" uidRef="4621">6407/5-B-3 H</name>
  <wellStatus>producing</wellStatus>
  <operationTime uom="d">30.000</operationTime>
  <flow uid="WELLBORE_6407_5_B_3H_PRODUCTION_ALLOCATED">
</facility>
</facility>
```

#### 4.2.9 Period

The NPD common schematron rules will validate that a period element has a kind, dateStart and dateEnd element.

```

<facility>
  <name kind="platform" namingSystem="NPD" uidRef="277573">HULDRA</name>
  <flow uid="PLATFORM_HULDRA_CONSUME_FUEL_ALLOCATED">
    <name>PLATFORM HULDRA CONSUME_FUEL_ALLOCATED</name>
    <kind>consume - fuel</kind>
    <qualifier>allocated</qualifier>
    <product>
      <kind>diesel</kind>
      <period>
        <kind>month</kind>
        <dateStart>2011-04-01</dateStart>
        <dateEnd>2011-04-30</dateEnd>
        <volumeValue>
          <mass uom="kg">999999.000</mass>
          <densityValue>
            </period>
          </product>
        </flow>
      </facility>
    </object>

```

#### 4.2.10 Common volume, mass, density and work rule

The validation will verify that if specified the volume, mass, density or work element does not contain -999.99 or -99999.9999

#### 4.2.11 Tanker lifting balanceset

Rule that checks if a balanceset is specified with the flow kind='hydrocarbon accounting' it should contain a kind element, a cargoNumber element, a destination element and a balance detail element.

```

<dateEnd>2011-04-30</dateEnd>
<balanceSet>
  <kind>tanker lifting</kind>
  <cargoNumber>XXXXX/2</cargoNumber>
  <destination>
    <event>
      <date>2014-04-20</date>
      <kind>bill of lading</kind>
    </event>
    <volumeValue>
      <mass uom="kg">000000.000</mass>
      <densityValue>
        <balanceDetail>
          </balanceSet>
        <balanceSet>

```

#### 4.2.12 Tanker lifting destination name

The validation will ensure that the destination name is specified.

```

<balanceSet>
  <kind>tanker lifting</kind>
  <cargoNumber>XXXXX/2</cargoNumber>
  <destination>
    <name>Kalundborg</name>
    <country>DENMARK</country>
  </destination>
  <event>
    <volumeValue>

```

#### 4.2.13 Tanker lifting destination country name

The country name is validated on the NPD side to ensure that it is correct. The validation will also make sure that the element is specified.

```

<name kind="terminal" namingSystem="NPD" uidRef="363441">MELKØYA</name>
<flow uid="TERMINAL_MELKØYA_INVENTORY_ALLOCATED">
<flow uid="TERMINAL_MELKØYA_CONSUME_VENTING_ALLOCATED">
<flow uid="TERMINAL_MELKØYA_CONSUME_FUEL_ALLOCATED">
<flow uid="TERMINAL_MELKØYA_HYDROCARBONACCOUNTING_SALEABLE">
  <name>TERMINAL_MELKØYA_HYDROCARBONACCOUNTING_SALEABLE</name>
  <kind>hydrocarbon accounting</kind>
  <qualifier>saleable</qualifier>
  <product>
    <kind>gas - dry</kind>
    <period>
      <kind>month</kind>
      <dateStart>2015-01-01</dateStart>
      <dateEnd>2015-01-31</dateEnd>
      <balanceSet>
        <kind>tanker lifting</kind>
        <cargoNumber>20150909/1</cargoNumber>
        <destination>
          <name>Livorno LNG Terminal</name>
          <country>ITALY</country>
        </destination>
        <event>
          <date>2015-01-28</date>
          <kind>bill of lading</kind>
        </event>
        <volumeValue>
        <densityValue>
        <balanceDetail>
      </balanceSet>
    </balanceSet>
  </balanceSet>

```

#### 4.2.14 Tanker lifting balancedetail owner name

The name of the company as specified as being owner of a given cargo fraction is validated against the NPD fact pages. The validation will also make sure that the element is existing.

```

<balanceSet>
  <kind>tanker lifting</kind>
  <cargoNumber>XXXXX/2</cargoNumber>
  <destination>
    <name>Kalundborg</name>
    <country>DENMARK</country>
  </destination>
  <event>
  <volumeValue>
  <mass uom="kg">000000.000</mass>
  <densityValue>
  <balanceDetail>
    <owner>DEA Norge AS</owner>
    <share uom="%">100.000000</share>
    <volumeValue>
    <mass uom="kg">0.000</mass>
  </balanceDetail>

```

#### 4.2.15 Tanker lifting balancedetail share

The balancedetail share needs to be specified and the uom need to be %.

```

<balanceSet>
  <kind>tanker lifting</kind>
  <cargoNumber>XXXXX/2</cargoNumber>
  <destination>
    <name>Kalundborg</name>
    <country>DENMARK</country>
  </destination>
  <event>
  <volumeValue>
  <mass uom="kg">000000.000</mass>
  <densityValue>
  <balanceDetail>
    <owner>DEA Norge AS</owner>
    <share uom="%">100.000000</share>
    <volumeValue>
    <mass uom="kg">0.000</mass>

```

#### 4.2.16 Tanker lifting cargo total share

The validation will verify that the sum of all specified shares for a given cargo with the specified cargo number sums up to 100%.

```

<dateLift>2017-04-30</dateLift>
<balanceSet>
  <kind>tanker lifting</kind>
  <cargoNumber>XXXXX/2</cargoNumber>
  <destination>
    <name>Kalundborg</name>
    <country>DENMARK</country>
  </destination>
  <event>
    <volumeValue>
      <mass uom="kg">000000.000</mass>
    </volumeValue>
    <densityValue>
      <balanceDetail>
        <owner>DEA Norge AS</owner>
        <share uom="%">100.000000</share>
        <volumeValue>
          <mass uom="kg">0.000</mass>
        </volumeValue>
      </balanceDetail>
    </densityValue>
  </event>
</balanceSet>

```

#### 4.2.17 Volume value

The validation will verify that when a volumeValue element is specified it contains a volume, pres and temp element. The volume needs to be given at standard or normal conditions, hence the temperature element can be either 15degC or 0degC or 60degF. The associated pressure can be either 1 or 0 atm. E.g. standard conditions (Sm3) are specified as 15degC/1atm and normal conditions (Nm3). as 0degC/0atm.

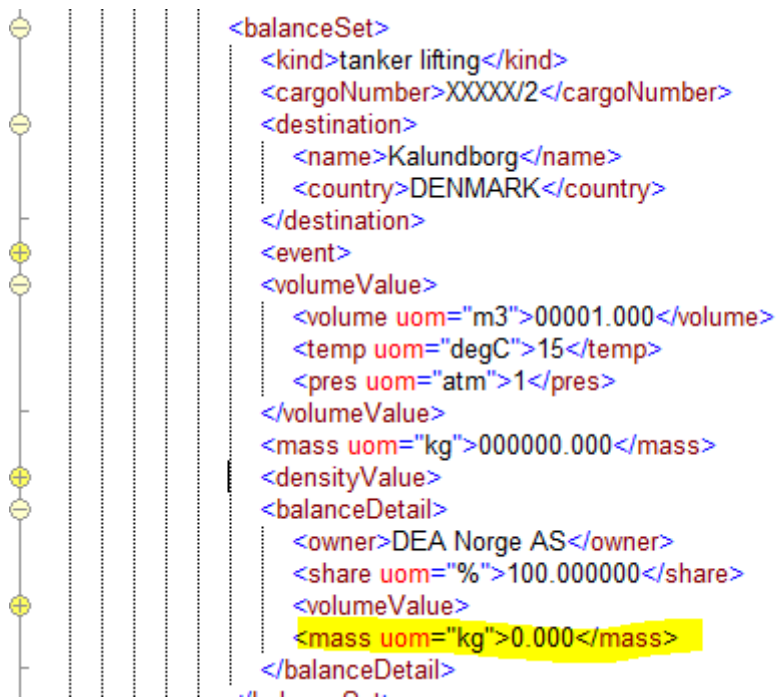
```

<balanceSet>
  <kind>tanker lifting</kind>
  <cargoNumber>XXXXX/2</cargoNumber>
  <destination>
    <name>Kalundborg</name>
    <country>DENMARK</country>
  </destination>
  <event>
    <volumeValue>
      <volume uom="m3">00001.000</volume>
      <temp uom="degC">15</temp>
      <pres uom="atm">1</pres>
    </volumeValue>
    <mass uom="kg">000000.000</mass>
    <densityValue>

```

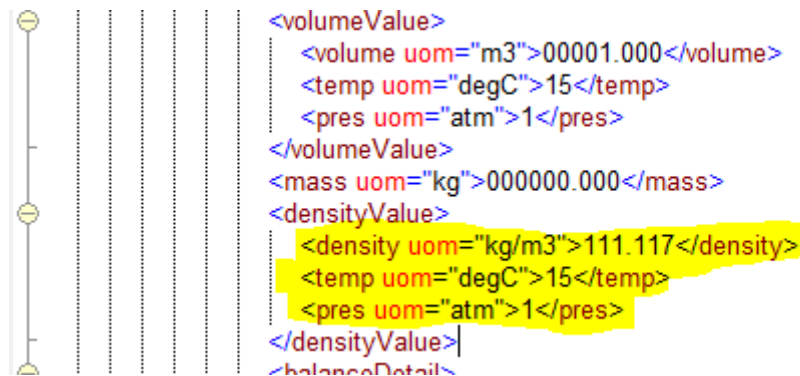
#### 4.2.18 Mass

The validation will check that if a mass element is specified it has a unit of measurement specified as kg or t (tons).



#### 4.2.19 Density

The validation will check that if a density element is evident it should contain a density, temp and pres element. The valid unit of measurement for the density is kg/m3 specified at either standard or normal conditions, hence the temperature element can be either 15degC or 0degC. The associated pressure can be either 1 or 0 atm. E.g. standard conditions (Sm3) are specified as 15degC/1atm and normal conditions (Nm3). as 0degC/0atm.



### 4.3 Monthly production report to partners

The monthly production report to partners validation follows the same rules as for the monthly production reporting to the government with the exception that there is no Diskos schematron rules applied.

## 5 DRILLING VALIDATION RULES

The following section describes validation rules for daily drilling reporting that is not part of the normal xml schema validation.

### 5.1 Drilling base validations rules



The following section describes drilling validation rules that are common both for Collabor8 Subsurface and the governmental reporting.


### 5.1.1 Wellbore alias name (wellbore code)

The wellbore alias name element is validated according to the NPD fact pages, so that the name of the specified wellbore is valid. When the naming system is specified as NPD code the name element is validated against the NPD fact pages and wellbore name.

```
<witsml:drillReport uidWell="948421D6F7894462A5E4B9F0365D476E">
  <witsml:nameWell>2/4-A-14</witsml:nameWell>
  <witsml:nameWellbore>2/4-A-14</witsml:nameWellbore>
  <witsml:name>2/4-A-14</witsml:name>
  <witsml:dTimStart>2016-09-08T00:00:00.001Z</witsml:dTimStart>
  <witsml:dTimEnd>2016-09-09T00:00:00.001Z</witsml:dTimEnd>
  <witsml:versionKind>normal</witsml:versionKind>
  <witsml:createDate>2016-09-09T12:12:00.001Z</witsml:createDate>
  <witsml:wellAlias>
    <witsml:name>2/4-A-14</witsml:name>
    <witsml:namingSystem>NPD code</witsml:namingSystem>
  </witsml:wellAlias>
  <witsml:wellboreAlias>
    <witsml:name>2/4-A-14</witsml:name>
    <witsml:namingSystem>NPD code</witsml:namingSystem>
  </witsml:wellboreAlias>
  <witsml:wellboreAlias>
    <witsml:name>592</witsml:name>
    <witsml:namingSystem>NPD number</witsml:namingSystem>
  </witsml:wellboreAlias>
  ...
</witsml:drillReport>
```

### 5.1.2 Wellbore alias code (wellbore number)

When the wellbore alias is specified using a naming system of "NPD number" the name element will validate that the given wellbore id is according to the fact pages.



```
<witsml:createDate>2016-09-09T12:12:00.001Z</witsml:createDate>
<witsml:wellAlias>
  <witsml:name>2/4-A-14</witsml:name>
  <witsml:namingSystem>NPD code</witsml:namingSystem>
</witsml:wellAlias>
<witsml:wellboreAlias>
  <witsml:name>2/4-A-14</witsml:name>
  <witsml:namingSystem>NPD code</witsml:namingSystem>
</witsml:wellboreAlias>
<witsml:wellboreAlias>
  <witsml:name>592</witsml:name>
  <witsml:namingSystem>NPD number</witsml:namingSystem>
</witsml:wellboreAlias>
<witsml:wellDatum>
<witsml:wellDatum>
<witsml:wellboreInfo>
```

### 5.1.3 Wellbore name and id

The validation will ensure that the name of the given wellbore also matches the specified wellbore id. In the example below it means that the wellbore with a name 2/4-A-14 is verified against the specified wellbore number 592 ensuring that the name matched the specified id.

```
<witsml:createDate>2016-09-09T12:12:00.001Z</witsml:createDate>
<witsml:wellAlias>
  <witsml:name>2/4-A-14</witsml:name>
  <witsml:namingSystem>NPD code</witsml:namingSystem>
</witsml:wellAlias>
<witsml:wellboreAlias>
  <witsml:name>2/4-A-14</witsml:name>
  <witsml:namingSystem>NPD code</witsml:namingSystem>
</witsml:wellboreAlias>
<witsml:wellboreAlias>
  <witsml:name>592</witsml:name>
  <witsml:namingSystem>NPD number</witsml:namingSystem>
</witsml:wellboreAlias>
<witsml:wellDatum>
<witsml:wellDatum>
```

### 5.1.4 Wellbore operator

The operator of a given well is validated that the name is according to the NPD factpages.

```
<wellboreInfo>
  <dTimPreSpud>2018-04-28T12:13:33.000Z</dTimPreSpud>
  <operator>Spirit Energy Norge AS</operator>
  <drillContractor>Odfjell Drilling</drillContractor>
  <rigAlias>
    <name>Island Innovator</name>
    <namingSystem>NPD Name</namingSystem>
  </rigAlias>
  <rigAlias>
    <name>426940</name>
    <namingSystem>NPD code</namingSystem>
```

### 5.1.5 Rig alias name

The validation will make sure that the specified rig name is according to the npd fact pages when using a naming system of NPD name under the rigalias element.

```
<witsml:wellboreInfo>
  <witsml:dTimPreSpud>1974-12-03T00:00:00.001Z</witsml:dTimPreSpud>
  <witsml:operator>CONOCOPHILLIPS</witsml:operator>
  <witsml:drillContractor>ROWAN DRILLING COMPANY</witsml:drillContractor>
  <witsml:rigAlias>
    <witsml:name>ROWAN GORILLA VI</witsml:name>
    <witsml:namingSystem>NPD Name</witsml:namingSystem>
  </witsml:rigAlias>
  <witsml:rigAlias>
    <witsml:name>375355</witsml:name>
    <witsml:namingSystem>NPD code</witsml:namingSystem>
  </witsml:rigAlias>
</witsml:wellboreInfo>
<witsml:statusInfo>
```

### 5.1.6 Rig alias name and code combined

The validation will ensure that the specified rig name is matching with the specified rig id as fetched from the NPD fact pages.

```
<witsml:wellboreInfo>
  <witsml:dTimPreSpud>1974-12-03T00:00:00.001Z</witsml:dTimPreSpud>
  <witsml:operator>CONOCOPHILLIPS</witsml:operator>
  <witsml:drillContractor>ROWAN DRILLING COMPANY</witsml:drillContractor>
  <witsml:rigAlias>
    <witsml:name>ROWAN GORILLA VI</witsml:name>
    <witsml:namingSystem>NPD Name</witsml:namingSystem>
  </witsml:rigAlias>
  <witsml:rigAlias>
    <witsml:name>375355</witsml:name>
    <witsml:namingSystem>NPD code</witsml:namingSystem>
  </witsml:rigAlias>
</witsml:wellboreInfo>
<witsml:statusInfo>
  <witsml:reportNo>21</witsml:reportNo>
```

## 5.2 Government drilling validation rules

The following section describes validation rules that are done on the governmental side in addition to the common drilling validation as described above.

### 5.2.1 Rig alias code

The rig alias code is validated to ensure that it is according to the NPD fact pages.

```
<witsml:wellboreInfo>
  <witsml:dTimPreSpud>1974-12-03T00:00:00.001Z</witsml:dTimPreSpud>
  <witsml:operator>CONOCOPHILLIPS</witsml:operator>
  <witsml:drillContractor>ROWAN DRILLING COMPANY</witsml:drillContractor>
  <witsml:rigAlias>
    <witsml:name>ROWAN GORILLA VI</witsml:name>
    <witsml:namingSystem>NPD Name</witsml:namingSystem>
  </witsml:rigAlias>
  <witsml:rigAlias>
    <witsml:name>375355</witsml:name>
    <witsml:namingSystem>NPD code</witsml:namingSystem>
  </witsml:rigAlias>
</witsml:wellboreInfo>
<witsml:statusInfo>
```

## 6 NOT VALIDATED

The report installation kind type is not validated so that is only allowed to specify field or terminal

The productVolume installation kind element is allowed to be specified as e.g. a compressor which will fail the complete process. It should only be allowed to specify field or terminal at this level.

The productVolume installation element existence is not validated fails with RH-01.

The product volume flow uid if missing generates a RH-01 error message.