



Programme / Product	Safeguards QNFLO Reporting / Excel NSR19 Reporting Templates
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1. Welcome to the ONR QNFLO Reporting Templates

1. ONR have developed a suite of Excel templates to assist its QNFLO DutyHolders in creation of the following reports in XML format, as required under the NSR19 Regulations
 - a. Inventory Change Report (ICR)
 - b. Physical Inventory Listing Report (PIL)
 - c. Material Balance Report (MBR)
2. We assume that:
 - a. the user has already captured the data to be entered into these templates, e.g., in their own accounting system or in Excel, and the user simply needs a means of converting this to NSR19 XML
 - b. the user is familiar with MS Excel
 - c. the user is up to date with any required ONR training / Guidance.
 - d. the templates have been “trusted” by the user organisation per the accompanying Implementation Guide
3. Please note that:
 - a. the DutyHolder retains responsibility for their compliance with NSR19 Regulations, including
 - i. the accuracy & timeliness of reports
 - ii. the quality of data submitted; and
 - iii. the access & retention of all data under secure conditions
 - b. The DutyHolder is responsible for virus-checking of the templates before use or transmission.
 - c. ONR cannot be held responsible for any issues arising out of using the Templates.

2. About the NSR19 Regulations, Reporting Requirements & Compliance

1. Please see the NSR19 Regulations & compliance requirements. QNFLO specific regulatory requirements are found at Regulation 31.

3. About the Reporting Templates

Not a Nuclear Material Accounting or Record System

1. Although they can be copied & saved, the QNFLO Reporting Templates are not intended to provide an accounting or record system for qualifying nuclear material, or for capturing data in the first instance.

Instead, they are purely intended to support the capture & reformatting of existing data into XML for submission to ONR.

General Features

2. The Templates all function in the same way and appear very similar, with the only difference being the fields and validations specific to each report.

See the [Common Flow & Features](#) section for details of the common Template behaviours.

3. Each Template can be used to capture and validate a single instance of a single report type, e.g., one MBR, PIL or ICR report, using a separate form for the Report Header and Body.

Each record (or “line” or “entry”) in the body is entered or edited using the Body Form

4. The forms support NSR19 Corrections to all Report Types. However, by convention only ICR Corrections are routinely supported by ONR.
5. After entering data into the Template, the user may press “Validate and Export” to validate the entire report and, if valid, to export it in XML format.

Data Validation

6. “Validation” is limited to “Basic NSR19 Schema Validation”, which is limited to:
 - a. Checking that all “required” values have been captured, i.e., those values which NSR19 says cannot be null
 - b. Checking that “conditional” values have also been set or unset, i.e., where some combination of values requires that a particular field is filled or empty
 - c. That values are of the right datatype for the given field (e.g., dates, numbers), minimum & maximum length, value or decimal places
 - d. That values are drawn from a given “list of values” where specified
 - e. Dates are not in the future

The Header & Body forms indicate when an error is encountered

7. Validation does not include the following:
 - a. Validation
 - b. “Previous Report”, “Previous Line” and “Previous CRC” in NSR19 Corrections

Excel Macro-enabled Workbooks

8. The Templates are “Excel Macro-Enabled Workbooks” (file suffix “.xlsm”), developed in Microsoft Excel 365 (Version 2202 Build 16, 64-bit) and should run in any MS Excel 365 environment under Windows 7 or above
9. The Templates can usually only be opened and used where they have been “trusted” by the user’s organisation. Please see our separate Implementation Guide which deals with issues around establishing trust of our “ONR Code Signing Certificate”.

Pilot Version

10. The Templates are currently being piloted and are in a “Beta Testing” state. Please bear with us as we iron out any bugs or issues over the next few months.

4. Getting Started

Before considering using the Templates

1. Please ensure:
 - a. You are familiar with the NSR19 Regulations & Reporting Requirements
 - b. Your organisation has a process and standards for NSR19 Report Creation, and you are familiar with it
 - c. You are up to date with any ONR-provided training or training materials
2. Also please note & plan around the time likely to be required in filling out the template form, e.g., each line in the report is entered & validated using a form, and the Excel skills required.

Before starting a report creation or editing session

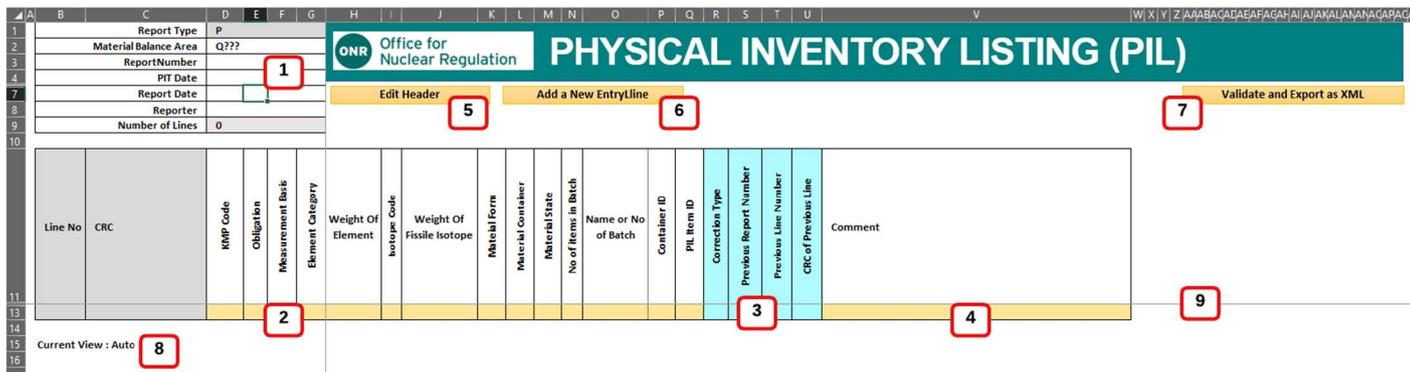
3. Please check the following:
 - a. You have already captured the data to be submitted in some other format, eg an Excel spreadsheet, and are ready to simply transfer this information into the template
 - b. You have someone who can check the entered data (a) (ideally) before it is captured in the template, and (b) (definitely) before submission to ONR
 - c. You have access to a compatible copy of Excel on a PC running Windows 7 or above, and with enough processor power to do the job
 - d. If starting a new report, you have access to an empty copy of the Excel Template and have permission to edit & save it
 - e. You are able to save the completed Report and any XML output files to somewhere suitable: for virus-checking, review/checking, filing/archiving and, in the case of the XML, transmission to ONR
 - f. You have time to prepare & file the report within the available deadlines
4. Make a copy of an empty Template of the required type, and rename it according to your organisation standards,
e.g., "QXXX 12345 ~ PIL 20230120 ~ v1_20230221", where
QXXX = your NSR19 MBA Code
12345 = the unique report number you've assigned to this report
PIL 20230120 = a PIL with a PIT date of 20-Jan-2023
v1_20230221 = a version number based on the current date
5. Please proceed to open the renamed Template in Excel

5. Common Flow & Features of all Templates

The following flow & features are common to all of the Templates, taking the PIL as an example:

5.1. Upon First Opening an Empty Template File

Figure 1: Upon first opening an empty template file



1. Figure 1 (above) shows the state of a new template file when opened. The numbered items are as follows:

1	Header Block, raw unvalidated	Information to be included in the Report Header, which is mandatory These fields will initially be empty, or have prompts for values that need replacing, eg your MBA value is prompted as "Q???" To edit the Header, click "Edit Header" (#5), or double-click anywhere above the "Header Line" (#9), to display the "Header Form" (see later) Note that "Report Type" and "Number of Lines" are automatically set & calculated respectively and cannot be edited.
2	Body Block, empty	Information to be included in the Report Body. These fields will initially be empty. To add a new Body Entry, click "Add a New Entry Line" (#6), or double-click anywhere below the "Header Line" (#9), to display the "Body Form" (see later) Note: the Body won't allow itself to be edited before the Header has been edited and validated. Attempting to do so will show you an "the known issues with the Header (aka an "Invalid Header Message" #13) and then open the "Header Form" (#10, see below)
3	NSR19 Correction Data	The fields in blue are data relating particularly to NSR19 Corrections; see later (#21) for more information
4	Comments Field	The NSR19 Comments field is always the last field in the Body Block (#2)
5	"Edit Header" Button	When clicked this displays the "Header Form" (#10, see later)
6	"Add New Entry" Button	When clicked this displays the "Add New Entry" panel in the Body Form (#20), see later Please note that, as mentioned previously, the Body Form will need to be filled in for each entry.
7	"Validate & Export XML" Button	When clicked this validates the entire template, including all data added so far, and then prompts you for a location to save the XML output. If any part of the report is invalid, an error prompt will be displayed – see below for details
8	"Current View" indicator	Shows the Current View being used to display the Body Block. The default is "Auto" for "Auto Size", where the displayed column widths adjust automatically to the data entered via the Body Form.

		See later for more information on other views and how to set them
9	Header Line	Double clicking above this line opens the Header Form, below opens the Body Form

5.2. Editing the Report Header using the Header Form

Figure 2: the Header Form

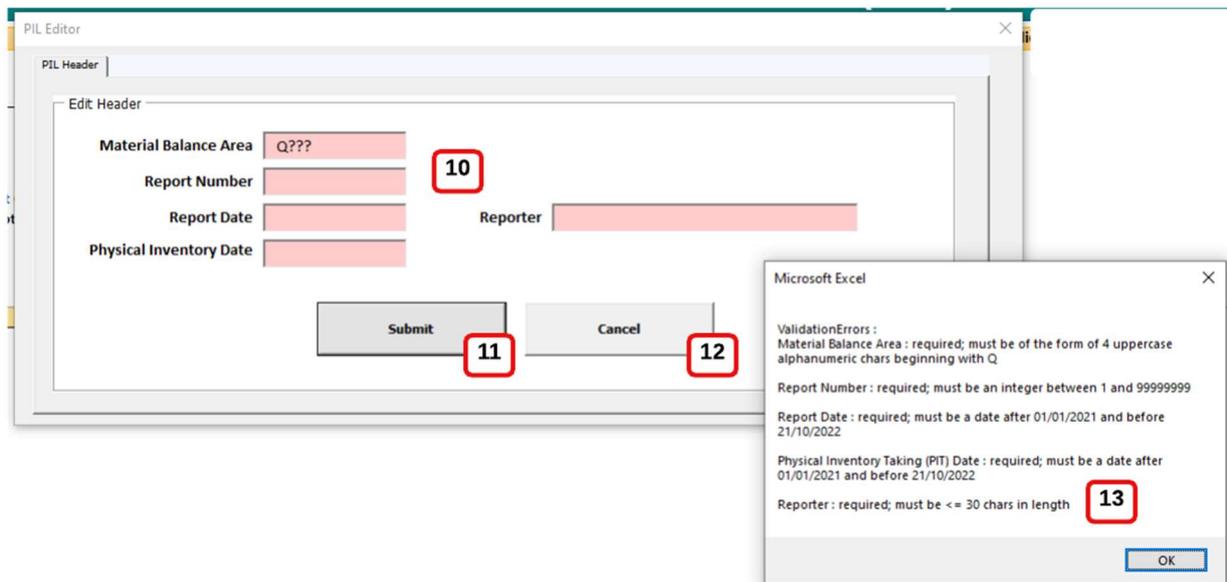


Figure 2 (above) shows the Header Form and an “Invalid Header Message” . The numbered items are as follows :

10	Header Fields	Fields vary according to the particular NSR19 Report (PIL, MBR, ICR). All are Mandatory information and must be filled out. Please see the NSR19 Regulations for further details. The fields are normally displayed in white, but we have here selected the “Submit” button (#11) and those fields in pink have failed validation. Details are given in the popup “Invalid Header Message” (#13) – see below.
11	“Submit Header” Button	When this is pressed, all fields on the form will be validated, and those failing validation will be highlighted in pink. Note: No fields are validated until this is pressed, and the only way to escape from the form is either to correct & validate successfully, or to “Cancel” – see below If invalid, an “Invalid Header Message” will be displayed (#13) Otherwise, the form will close, and the data will appear in the Header Block in the template. Following any change, the “CRC” field will be recalculated for all lines in the Body Block.
12	“Cancel Header” Button	When this is pressed, all data in the form will be discarded and the form will close Note: pressing the “Escape Key” (Esc) also executes this action, effectively pressing the button for you
13	Invalid Header Message	In the event of an error on “Submit”, this popup displays a list of validation errors for each field, which will correspond with the fields which have turned pink. Pressing OK returns you to the Header Form

5.3. Adding a New Line to the Report Body using the Body Form

Figure 3: The Body Form in “Adding a New Line” mode

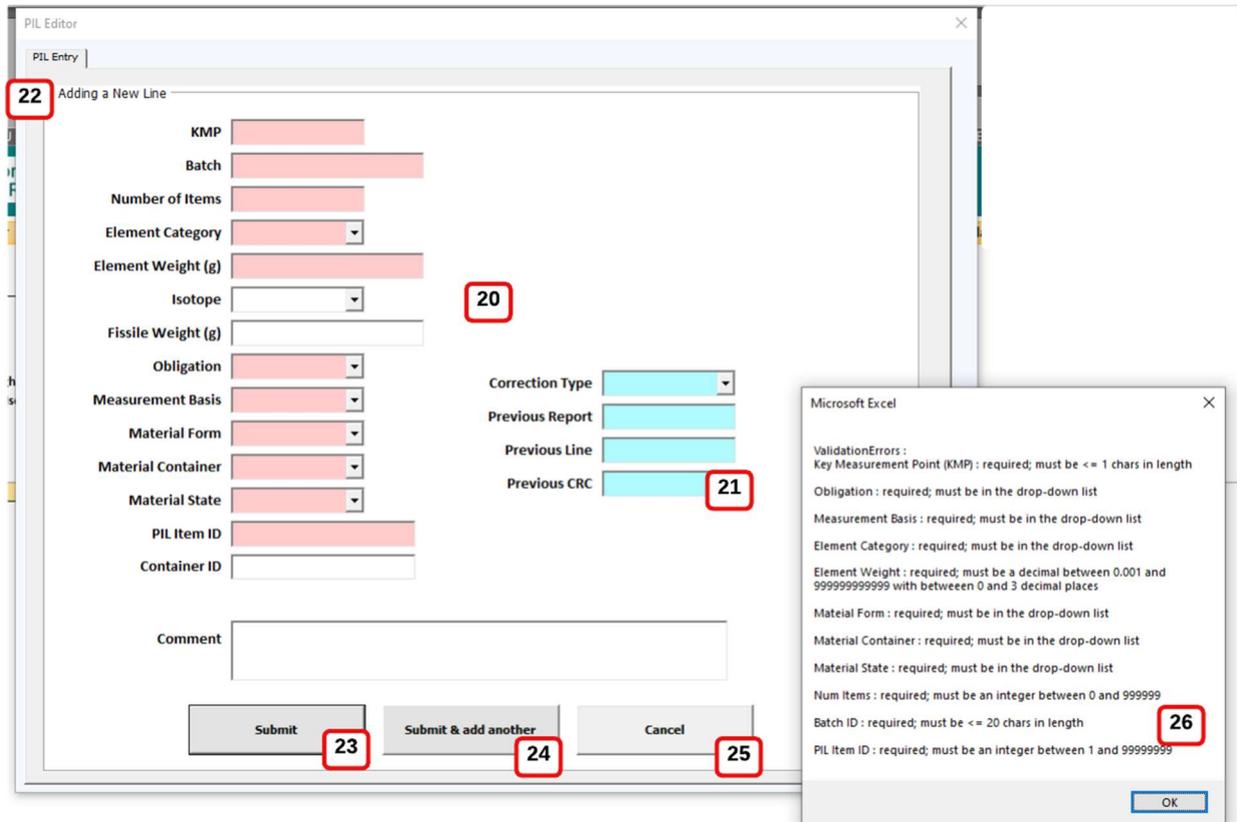


Figure 3 (above) shows the Body Form in “Adding a New Line” mode, together with an “Invalid Body Message”.

The numbered items are as follows:

20	Body Fields	Fields vary according to the particular NSR19 Report (PIL, MBR, ICR) and may be Mandatory (required), Optional or Conditional (i.e., validation depends on the values of other fields). Please see the NSR19 Regulations for further details As per the Header Form, the fields are normally displayed in white, but we have here selected the “Submit” button (#23)
21	NSR19 Correction Fields	The fields in blue are data relating particularly to NSR19 Corrections, including “Add”, “Delete” & “Late Line” corrections Please see the NSR19 Regulations for more detail on using these fields to correct NSR19 data
22	Body Editing Mode, “Adding a New Line”	The Editing Mode shows what action we are currently undertaking for a report body line Here we are “Adding a New Line”, but you may also see “Edit Line” and “Delete Line” in other contexts Note: the displayed buttons vary according to the Editing Action – see later
23	“Submit Body” Button	When this is pressed, all fields on the form will be validated, and those failing validation will be highlighted in pink. Note: No fields are validated until this is pressed, and the only way to escape from the form is either to correct & validate successfully, or to “Cancel” – see below If invalid, an “Invalid Body Message” will be displayed (#23) Otherwise the form will close and the data will appear as a new line in the Body Block in the template. The “Line Number” and “CRC” field for the line will be recalculated, also the “Number of Lines” reported in the Header Block.



24	“Submit & Add Another” Button	When pressed, this button attempts to “submit” the current form data per #23, above. If this is valid & submitted successfully, then it will clear the form and be ready to accept input of another entry.
25	“Cancel Body” Button	When this is pressed, all data in the form will be discarded and the form will close Note: pressing the “Escape Key” (Esc) also executes this action, effectively pressing the button for you
26	Invalid Body Message	In the event of an error on “Submit”, this popup form displays a list of validation errors for each field, which will correspond with the fields which have turned pink. Pressing OK returns you to the Body Form

5.4. Upon continuing to edit an existing Template file

Figure 4: Upon continuing to edit an existing Template file

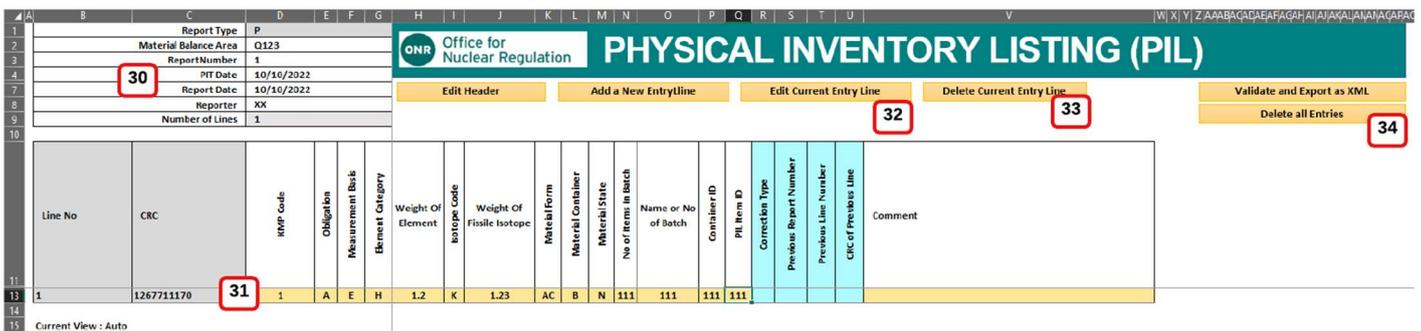


Figure 4 (above) shows a template file with editing underway. The numbered items are as follows:

30	Header Block, validated	All Header information has been filled out & submitted successfully using the Header Form
31	Body Block, with a single entry	A single entry has been added & submitted successfully using the Body Form Note that “Line No” and “CRC” are automatically calculated and cannot be edited.
32	“Edit Current Entry” Button	This button displays when data is present in the Body Block and any cell on a line of data is selected, in this case on the single line present When clicked, the Body Form will be displayed in “Edit Line” mode, showing the data for the selected line Note: double-clicking on a data line in the Body Block will also show this form
33	“Delete Current Entry” Button	This button displays when data is present in the Body Block and any cell on a line of data is selected, in this case on the single line present When clicked, the Body Form will be displayed in “Confirm Delete Line” mode, showing the data for the selected line
34	“Delete All Entries” Button	This button displays when data is present in the Body Block When clicked, the user is asked to confirm that all data in the body block is to be cleared. <div style="text-align: center;"> </div> If “OK” then the data will be cleared down

5.5. Editing a line in the Report Body using the Body Form

Figure 5: The Body Form in “Edit Line” mode

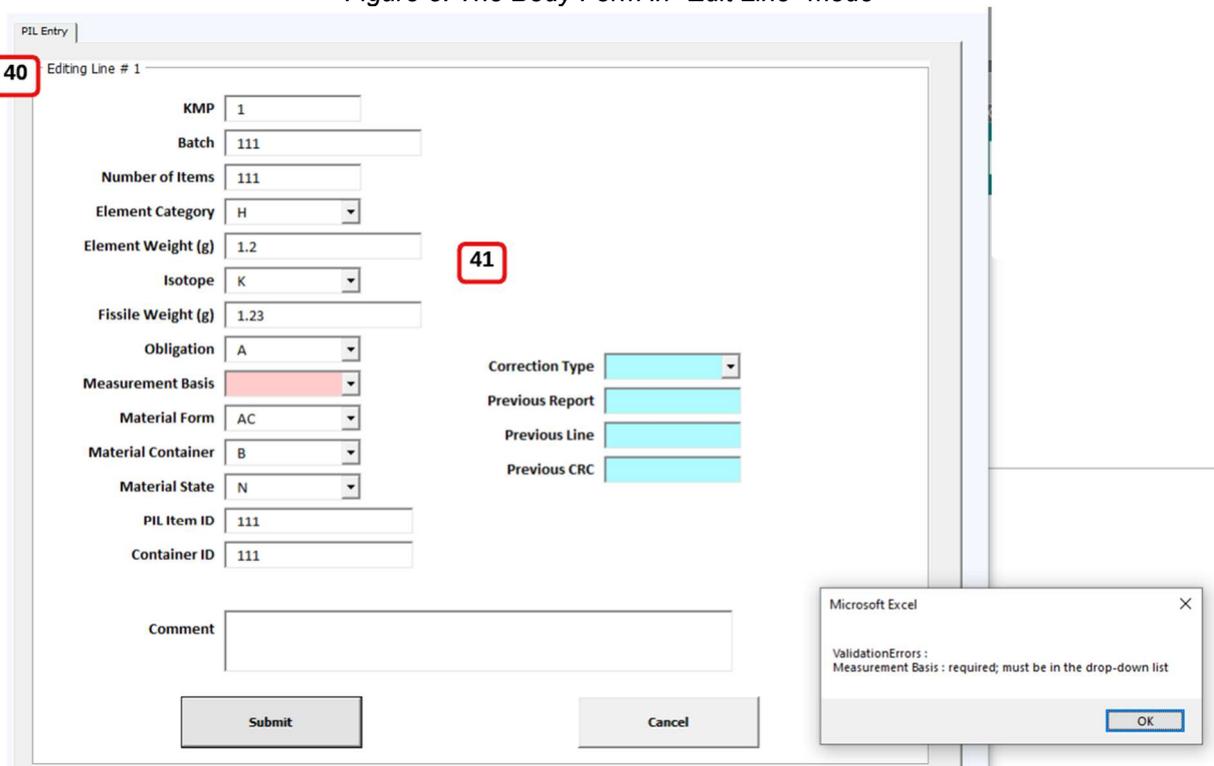


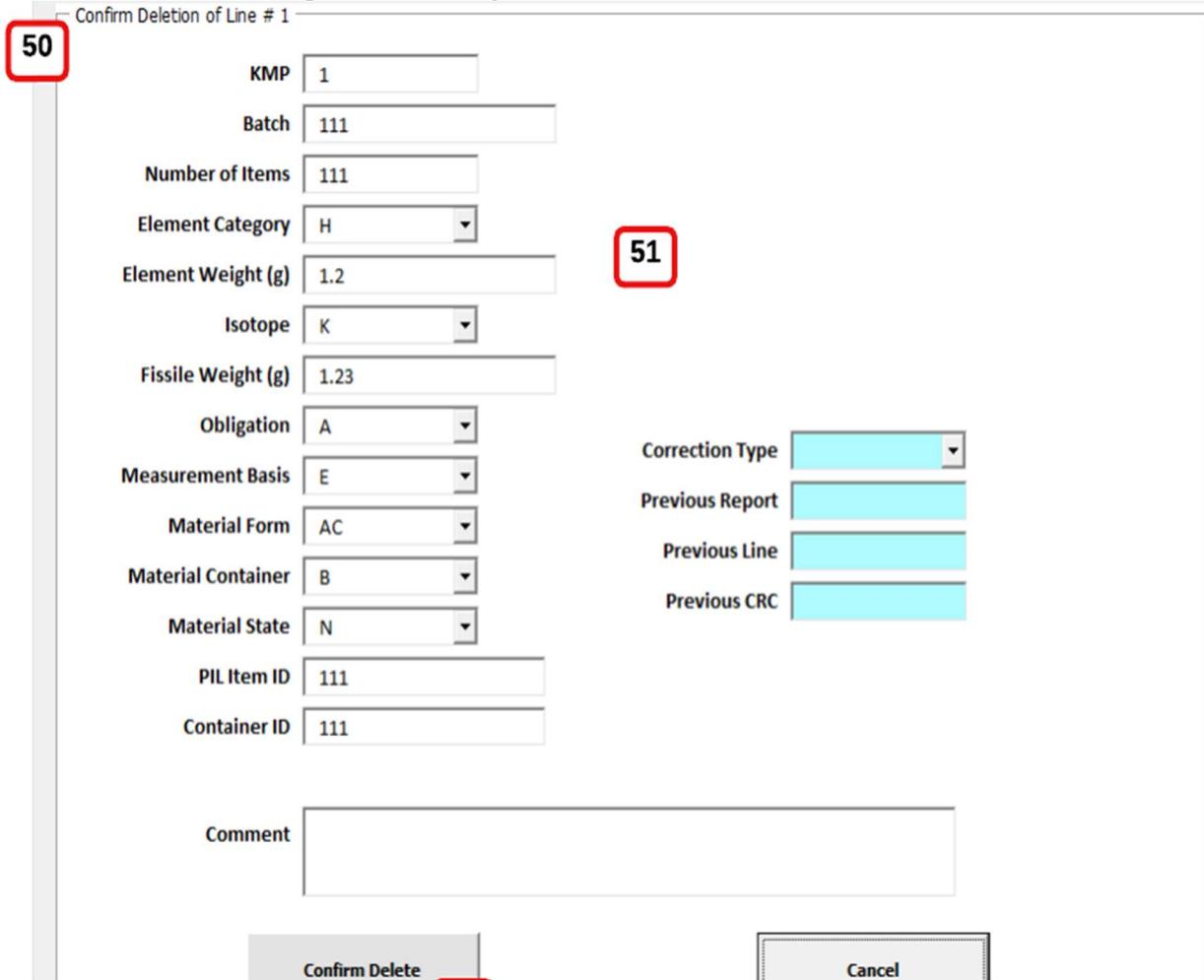
Figure 5 (above) shows the Body Form in “Edit Line” mode, together with an “Invalid Body Message”.

The numbered items are as follows:

40	Body Editing Mode, “Edit Line”	Displays the current mode and line number
41	Body Fields	<p>Fields vary according to the particular NSR19 Report (PIL, MBR, ICR) and may be Mandatory (required), Optional or Conditional (ie validation depends on the values of other fields). Please see the NSR19 Regulations for further details</p> <p>The fields are normally displayed in white, but we have here selected the “Submit” button and it has highlighted an error</p> <p>Following any change, the “CRC” field for the line will be recalculated</p>

5.6. Deleting a line in the Report Body

Figure 6: The Body Form in “Confirm Delete Line” mode



Confirm Deletion of Line # 1

50

KMP

Batch

Number of Items

Element Category

Element Weight (g) **51**

Isotope

Fissile Weight (g)

Obligation

Measurement Basis

Material Form

Material Container

Material State

PIL Item ID

Container ID

Correction Type

Previous Report

Previous Line

Previous CRC

Comment

Figure 6 (above) shows the Body Form in “Confirm Delete Line” mode.

The numbered items are as follows:

50	Body Editing Mode, “Confirm Delete Line”	Displays the current mode and line number
51	Body Fields	Fields are displayed for information only, but cannot be edited in this form
52	“Confirm Delete” Button	When pressed the corresponding line will be deleted from the Body Block Lines will automatically be renumbered if necessary

5.7. Generating an NSR19 XML Output File

Figure 7: the “Validate & Export XML” Button

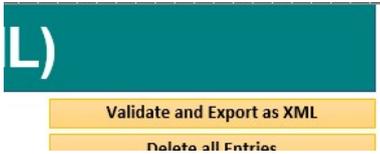


Figure 8: the prompt for XML Output Directory

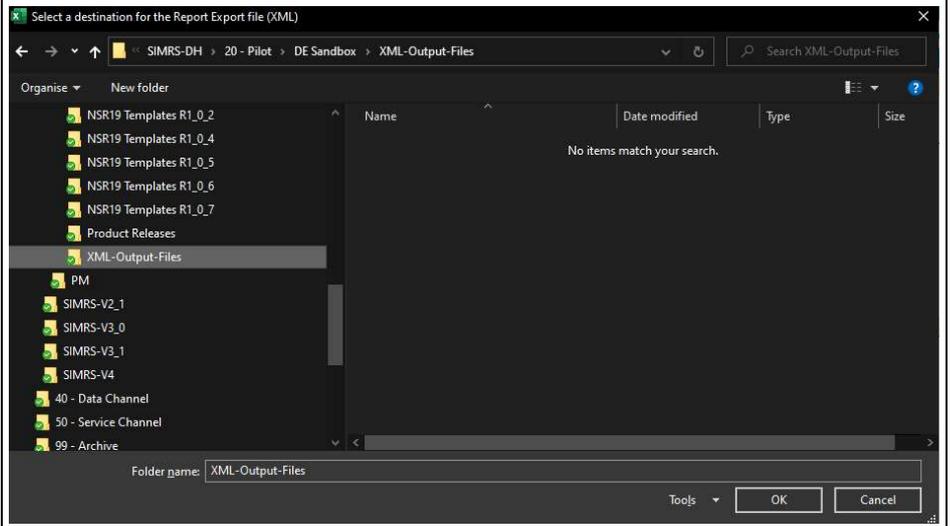
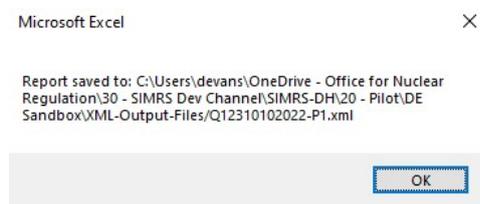


Figure 7 (above) shows the “Validate and Export as XML” Button in the top right-hand corner of each Template. Clicking on this will cause the entire form to be validated and, if invalid, an “Invalid Report” message will be displayed, identifying the errors. If the problem is with the Header Block, then the Header Form will be opened for editing automatically.

However, if valid, you will instead be shown a “Windows Directory Picker” (per Figure 8, above), which you should use to select a valid directory for the XML output file. After pressing “OK”, the file will be written with a name of the form <MBA><DDMMYYYY>-<ReportTypeLetter>1.xml and a success message will be displayed as follows:



5.8. Saving the edited Template

Please save your work regularly using the Excel “Save” command, or Ctrl-S. You may also wish to save & return to the document over several editing sessions, depending on your volume of work.

6. Physical Inventory Listing Report (PIL)

1. See [Common Template Flow & Features](#) for the bulk of functions in this report
2. Please see the NSR19 Regulations regarding specific PIL data requirements. However, the following should be noted:
 - a. The PIL Body may be “empty” if there are no PIL positions to report
 - b. ONR would not normally expect any NSR19 Corrections to appear in the PIL Body. Please consult with ONR over any proposed use of this facility.

7. Material Balance Report (MBR)

1. See [Common Template Flow & Features](#) for the bulk of functions in this report
2. Please see the NSR19 Regulations regarding specific MBR data requirements. However, the following should be noted:
 - a. NSR19 sets out specific requirements for the MBR Body, which may not be “empty”
 - b. ONR would not normally expect any NSR19 Corrections to appear in the MBR Body. Please consult with ONR over any proposed use of this facility.

8. Inventory Change Report (ICR)

1. See [Common Template Flow & Features](#) for the bulk of functions in this report
2. Please see the NSR19 Regulations regarding specific MBR data requirements. However, the following should be noted:
 - a. [NSR19 sets out specific requirements for the MBR Body, which may not be “empty”](#)

9. After creating or editing a report

1. You should save your work from time-to-time using the Excel Save function and save a final copy of the completed Template & any output files in case you need to refer to them in future.
2. At this stage, you will ideally have the Template data validated by a colleague and, if necessary, undertake any data corrections.
3. You will want to validate your Template data and to generate an XML Output file for transmission to ONR
See [5.7. Generating an NSR19 XML Output File](#) for details.
4. Please rename the XML Output file as required by your organisation, and transmit to ONR via your usual mechanism, including a pre-transmission virus-check.
5. In the event the file is queried or rejected by ONR, please keep the Template & Output files on-hand so that your support team, with the support of ONR where required, can try to diagnose and rectify the problem.

10. If you need help

1. Please refer to our ONR QNFLO Online Help & Support pages for Frequently Asked Questions (FAQs) and for how to get in-touch with ONR Support.



12. References

Ref	Document
Nuclear Safeguards Regulations 2019	<i>UK Nuclear Safeguards Regulations 2019</i>

13. Glossary of Acronyms & Terms

- The following terms & definitions are used herein

Term	Meaning
NMA	Nuclear Material Accountancy
NM Accounts	Nuclear Material Accounts
NSR19	Conformant with the requirements & rules of [<i>Nuclear Safeguards Regulations 2019</i>] and its associated XML messaging schema
QNFLO	Qualifying Nuclear Facilities with Limited Operation
ICR	An NSR19 Inventory Change Report
MBP	Material Balance Period
MBR	Material Balance Report, under either NSR19 or C10
PIL	Physical Inventory Listing Report, under either NSR19 or C10
NSR19 Correction or Correction Line	A line in an NSR19 Report Body, which is intended to correct information on another line in the same or prior ICR for the same MBA



Document Approval Tracker

Date Issued:	2022- 12-02
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Approved by:	Nina Barnes Stephen Pendleton
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Details of Change:	Correction to S8, noting that an ICR must have at least one Entry

Revision History

Revision	Author(s)	Reviewed by	Accepted by	Description of Change
1_0_2022-12-02	David Evans			Correction to S8, noting that an ICR must have at least one Entry
1_0_2022-11-02	David Evans			Baseline version for Pilot R1_0_7