

---

## NNSA Weapon Quality Division (NA-121.3)



# Weapon Quality Assurance (WQA) Process Model Use Guide

Version 1

March 2024

National Nuclear Security Administration (NNSA)

Office of Defense Programs (NA-10)

Office of Stockpile Management (NA-12)

Office of Stockpile Production Integration (NA-121)





## Revision History

Version Number	Description of Change(s)	Release Date
Version 1	Initial release version	March 1, 2024



---

## Table of Contents

<b>1</b>	<b>Document Usage.....</b>	<b>1</b>
<b>2</b>	<b>Scope .....</b>	<b>1</b>
<b>3</b>	<b>Navigating the Interactive Business Process Diagram.....</b>	<b>2</b>
<b>4</b>	<b>Weapon Quality Assurance Process.....</b>	<b>5</b>
4.1	F/PO Develops and Submits QAAP.....	5
4.2	NNSA WQD Plans and Conducts WQA Activities .....	6
4.3	F/PO Executes to the F/PO QAAP .....	6
4.4	Use and Control of NNSA Accepted Product .....	9
4.5	F/PO Analyzes WQA Performance Information and Documents Results .....	11
<b>5</b>	<b>Key Definitions .....</b>	<b>12</b>
5.1	WQA Processes Glossary Terms.....	12
<b>6</b>	<b>Traceability References.....</b>	<b>13</b>
	<b>Appendix A: Weapons Quality Assurance Process Templates .....</b>	<b>14</b>



## List of Acronyms

Acronym	Definition
WQA	Weapon Quality Assurance
NNSA	National Nuclear Security Administration
WQD	Weapon Quality Division
F/PO	Field/Production Office
QAAP	Quality Assurance Activity Plan
FY	Fiscal Year
QAS	Quality Assurance Survey
WQMS	Weapon Quality Management System
PA	Production Agency
M&O	Management and Operating Contractor
QIL	Quality Instruction List
CAV	Contractor Acceptance Verification
COI	Certificate of Inspection
QAIP	Quality Assurance Inspection Procedure
IP	Interproject
UK	United Kingdom
DOD	Department of Defense
DA	Design Agency
NMR	Nonconforming Material Report
M&TE	Measurement and Test Equipment



## 1 Document Usage

This document is used in conjunction with R004, "Weapon Quality Assurance Processes." R004 contains Federal requirements for implementing Weapon Quality Assurance (WQA) processes.

## 2 Scope

This document provides instructions for using the interactive WQA Process Model (Figure 1). The WQA Process Model provides users with information, guidance, and documentation to help with implementing and completing the R004 WQA process federal requirements.

**NOTE** Figures in this document have been hyperlinked to the online WQA Process Model and may be used by clicking on the figure to open the process model tool online.

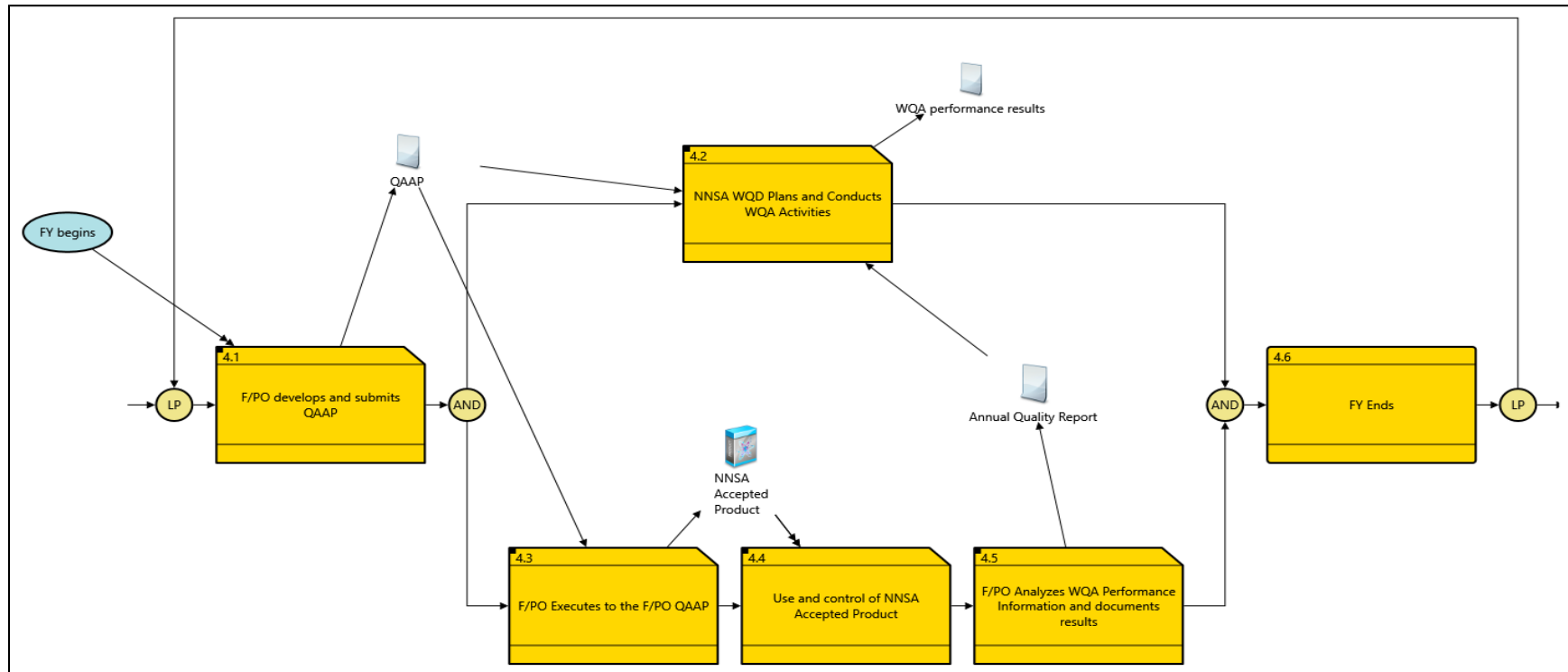


Figure 1. WQA Process Model



### 3 Navigating the Interactive Business Process Diagram

This section provides instructions for navigating the online interactive WQA Process Model.

The main blocks in the WQA Process Model (Figure 1) represent the WQA processes from R004 as shown below:

- 4.1 F/PO Develops and Submits QAAP
- 4.2 NNSA WQD Plans and Conducts WQA Activities
- 4.3 F/PO Executes to the F/PO QAAP
- 4.4 Use and Control of NNSA Accepted Product
- 4.5 F/PO Analyzes WQA Performance Information and Documents Results

When a user opens the online WQA Process Model and clicks a main process block, additional interactive blocks open that represent further steps. Figure 2 is an example of the portion of the WQA Process Model that opens when the **4.1: F/PO Develops and Submits QAAP** block is clicked.

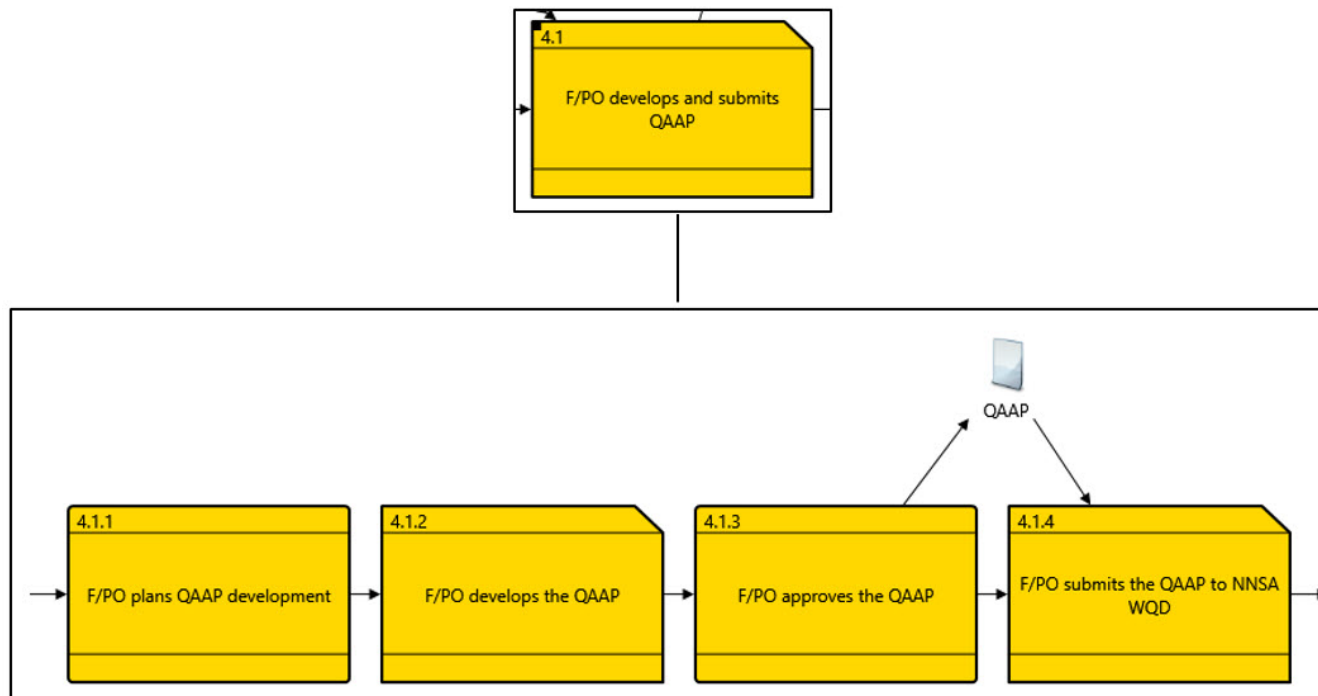


Figure 2. Example of 4.1: F/PO Develops and Submits QAAP



Some process blocks drill down three or more levels. At the end of each drill-down, the user has access to a property sheet that offers a description for that process step (see Figure 3).

Diamond.Stamp

F/PO applies a Diamond Stamp to the product

ProgramActivity / R004 Weapon Quality Assurance Process / Locked Activities / NNSA Stamping / F/PO applies a Diamond Stamp to the product

View: Property Sheet

Attributes | Parameters

Name

F/PO applies a Diamond Stamp to the product

Number

Diamond.Stamp

Description

Diamond

DOE

When a Verification Inspection has been completed to verify the Mark Quality status of a weapon product a Diamond stamp is applied to the product. This allows NNSA management control of this product to ensure that the product is used for its intended purpose.

Diamond stamp application:

1. The Diamond stamp is only to be applied by personnel that have met the qualification requirements in FTCP-PSQS-1125-2021, Weapon Quality Assurance Professional PSQS.
2. The appropriate sized Diamond stamp is applied directly to the product.
3. The Diamond stamp is applied adjacent to the part number (P/N), weapon nomenclature, major component (MC) number, or serial number (S/N), or lot number if no serial number, as applicable.
4. If stamping is impractical because of a small size, material incompatibility, or environmental packaging, apply the Diamond stamp on a tag or label, after ensuring that the label has the same product information (e.g., nomenclature, part number, serial number, lot number, date code, etc. as applicable).
5. The ink that is used for Diamond stamping meets requirements specified in drawing 9919103, "Identification by Ink and Transfer Marking," and in accordance with drawing 9919100, "Marking, General Methods," unless otherwise specifically called out in the product definition.
6. Contrasting ink color is used to ensure the Diamond stamp can be seen.

Execute

Decomposition

True

Relationships

compliance with

Standard: R004: FR39165

Standard: R004: FR60385

Standard: R004: FR64221

decomposes

ProgramActivity: 4.4.6.3.2 F/PO applies a new Diamond stamp

ProgramActivity: Fully Accepted F/PO applies a diamond stamp to the product after incidental defects have been corrected

Figure 3: Example of Property Sheet

(NOTE: Figure is not hyperlinked)



A block with a folded corner indicates that completion of that process step correlates to meeting an R004 federal requirement (see Figure 4).

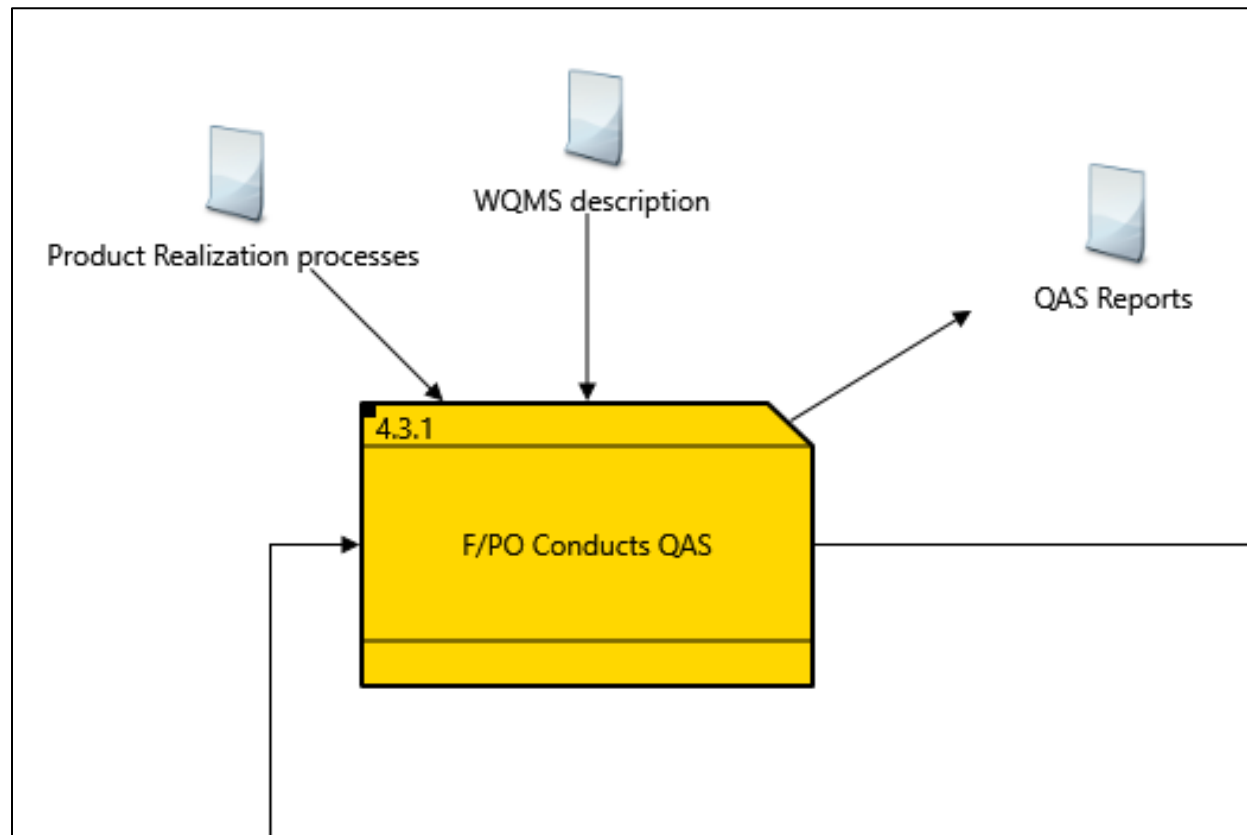


Figure 4: Folded Corner Example  
(NOTE: Figure is not hyperlinked)





## 4 Weapon Quality Assurance Process

This section introduces the top-level representation for each of the five R004 WQA processes as shown in the WQA Process Model (Figure 1 on page 1).

Users have two options to open the WQA Process Model:

1. To open the home page, click [Weapon Quality Assurance Process Model](#).
2. To open each individual WQA process, click the process graphic in each of the following sections.

Once the interactive model opens in a browser window, users can click each block or icon for additional steps and information. Remember, some process blocks drill down three or more levels.

Appendix A lists and provides links to the templates that are used throughout the WQA process.

### 4.1 F/PO Develops and Submits QAAP

Figure 5 graphically represents the blocks and document that open when a user clicks the **4.1 F/PO Develops and Submits a QAAP** graphic. Each of these blocks and documents are active and, when clicked, will open their respective property sheet.

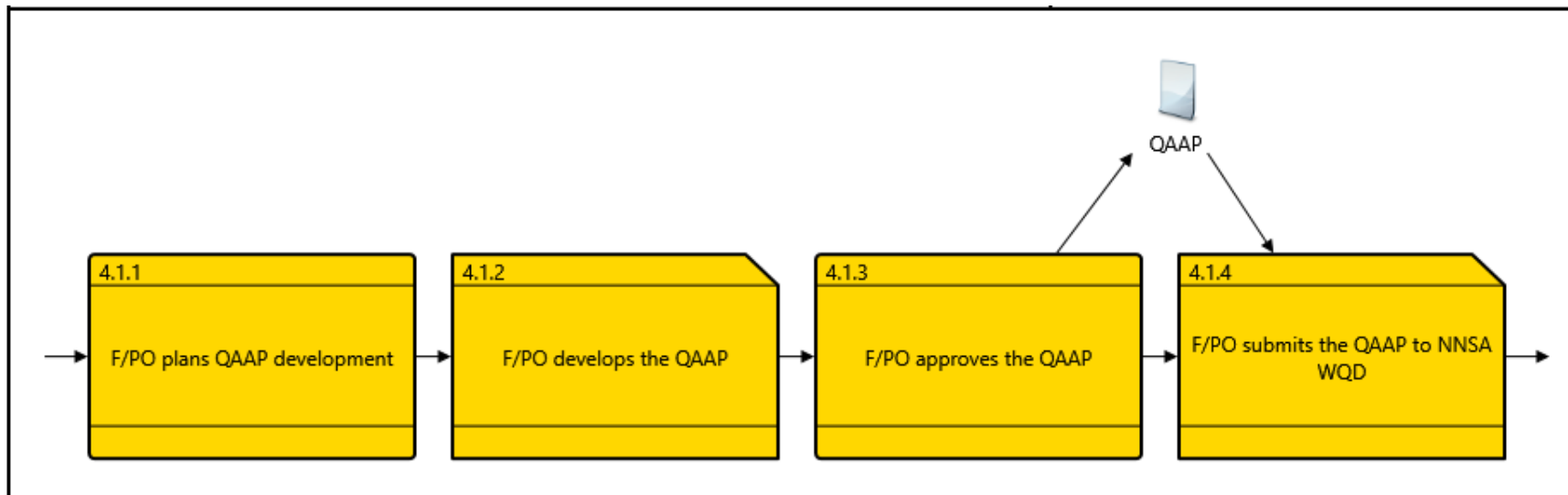


Figure 5. Section 4.1 Process Steps



## 4.2 NNSA WQD Plans and Conducts WQA Activities

Figure 6 graphically represents the blocks and documents that open when a user clicks the **4.2 NNSA WQD Plans and Conducts WQA Activities** graphic. Each of these blocks and documents are active and, when clicked, will open another active block or their respective property sheet.

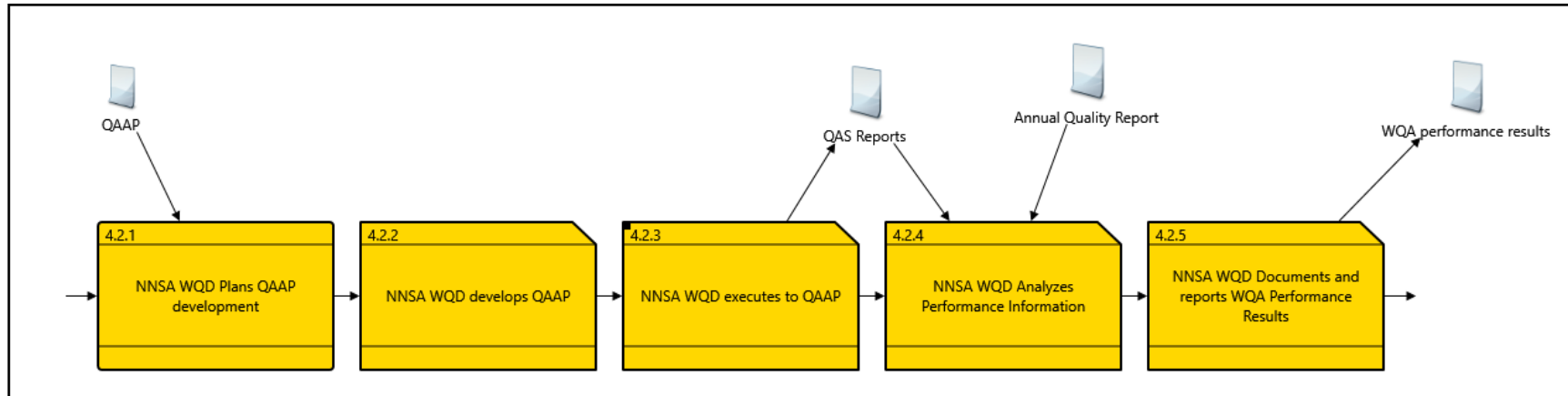


Figure 6. Section 4.2 Process Steps

## 4.3 F/PO Executes to the F/PO QAAP

Figure 7 graphically represents the blocks and documents that open when a user clicks the **4.3 F/PO Executes to the F/PO QAAP** graphic. Each of these blocks and documents are active and, when clicked, will open another active block or their respective property sheet. Table 1 following the figure provides links directly to necessary subprocesses used for this process.

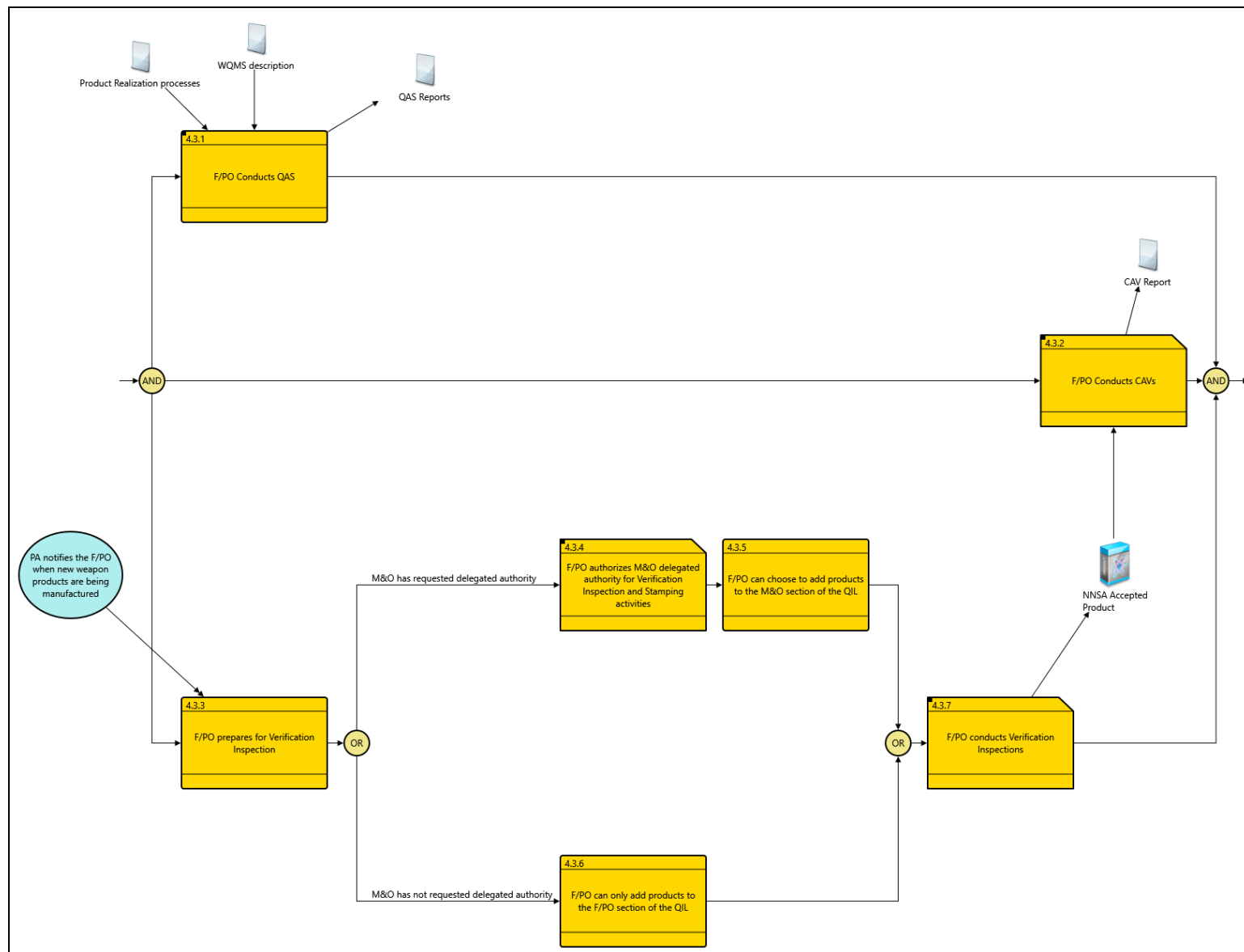


Figure 7. Section 4.3 Process Steps



Table 1. Section 4.3 Subprocesses

Subprocess Title	Model Location
F/PO Conducts QAS	<a href="#">4.3.1</a>
F/PO Conducts CAVs	<a href="#">4.3.2</a>
F/PO Authorizes M&O Delegated Authority for Verification Inspection and Stamping Activities	<a href="#">4.3.4</a>
PA applies a Diamond Stamp to the product	<a href="#">PA.Diamond.Stamp</a>
F/PO Conducts Verification Inspections	<a href="#">4.3.7</a>
F/PO makes a Quality Instruction List (QIL) determination	<a href="#">4.3.7.1</a>
F/PO develops Quality Assurance Inspection Procedure (QAIP)	<a href="#">4.3.7.2</a>
F/PO conducts Verification Inspections and Acceptance stamping	<a href="#">4.3.7.3</a>
PA submits product to NNSA for Verification Inspection utilizing a Certificate of Inspection (COI)	<a href="#">4.3.7.3.1</a>
When defects are identified the F/PO originates a Quality Assurance Defect Report (QADR)	<a href="#">4.3.7.3.13.2</a>
PA initiates corrective action response process	<a href="#">4.3.7.3.13.4</a>
F/PO utilizes a Circle T stamp to indicate conditional acceptance	<a href="#">4.3.7.3.13.13</a>
F/PO applies a Diamond Stamp to the product	<a href="#">Diamond.Stamp</a>
F/PO updates the Summary Log	<a href="#">Fully.Accepted.5</a>



## 4.4 Use and Control of NNSA Accepted Product

Figure 8 graphically represents the blocks and documents that open when a user clicks the **4.4 Use and Control of NNSA Accepted Product** graphic. Each of these blocks and documents are active and, when clicked, will open another active block or their respective property sheet. Table 2 following the figure provides links directly to necessary subprocesses used for this process.

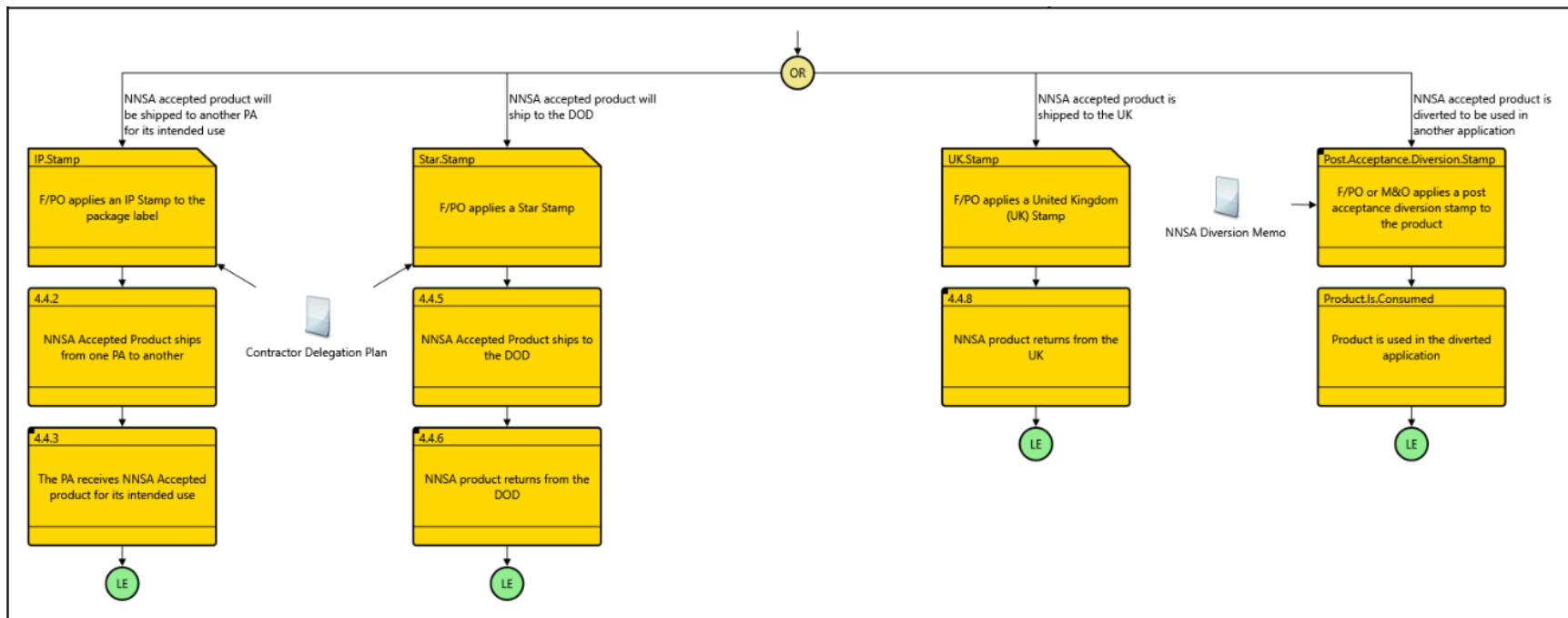


Figure 8. Section 4.4 Process Steps



Table 2. Section 4.4 Subprocesses

Subprocess	Model Location
F/PO applies an IP Stamp to the package label	<a href="#">IP.Stamp</a>
The PA receives NNSA Accepted product for its intended use	<a href="#">4.4.3</a>
PA receives and controls NNSA Accepted product	<a href="#">4.4.3.1</a>
Suspect NNSA accepted product is identified and notifications are made	<a href="#">4.4.3.1.2</a>
Shipping F/PO manages nonconforming NNSA Accepted product	<a href="#">4.4.3.1.5</a>
F/PO applies a Star Stamp	<a href="#">Star.Stamp</a>
NNSA product returns from the DOD	<a href="#">4.4.6</a>
F/PO, DA, or PA applies an AR Stamp to the product	<a href="#">Acceptance.Required.Stamp</a>
F/PO Reaccepts the product	<a href="#">4.4.6.3</a>
F/PO applies a United Kingdom (UK) Stamp	<a href="#">U.K.Stamp</a>
NNSA product returns from the UK	<a href="#">4.4.8</a>
F/PO, DA, or PA applies a post acceptance diversion stamp to the product	<a href="#">Post.Acceptance.Diversion.Stamp</a>



## 4.5 F/PO Analyzes WQA Performance Information and Documents Results

Figure 9 graphically represents the blocks and documents that open when a user clicks the **4.5 F/PO Analyzes WQA Performance Information and Documents Results** graphic. Each of these blocks and documents are active and, when clicked, will open another active block or their respective property sheet.

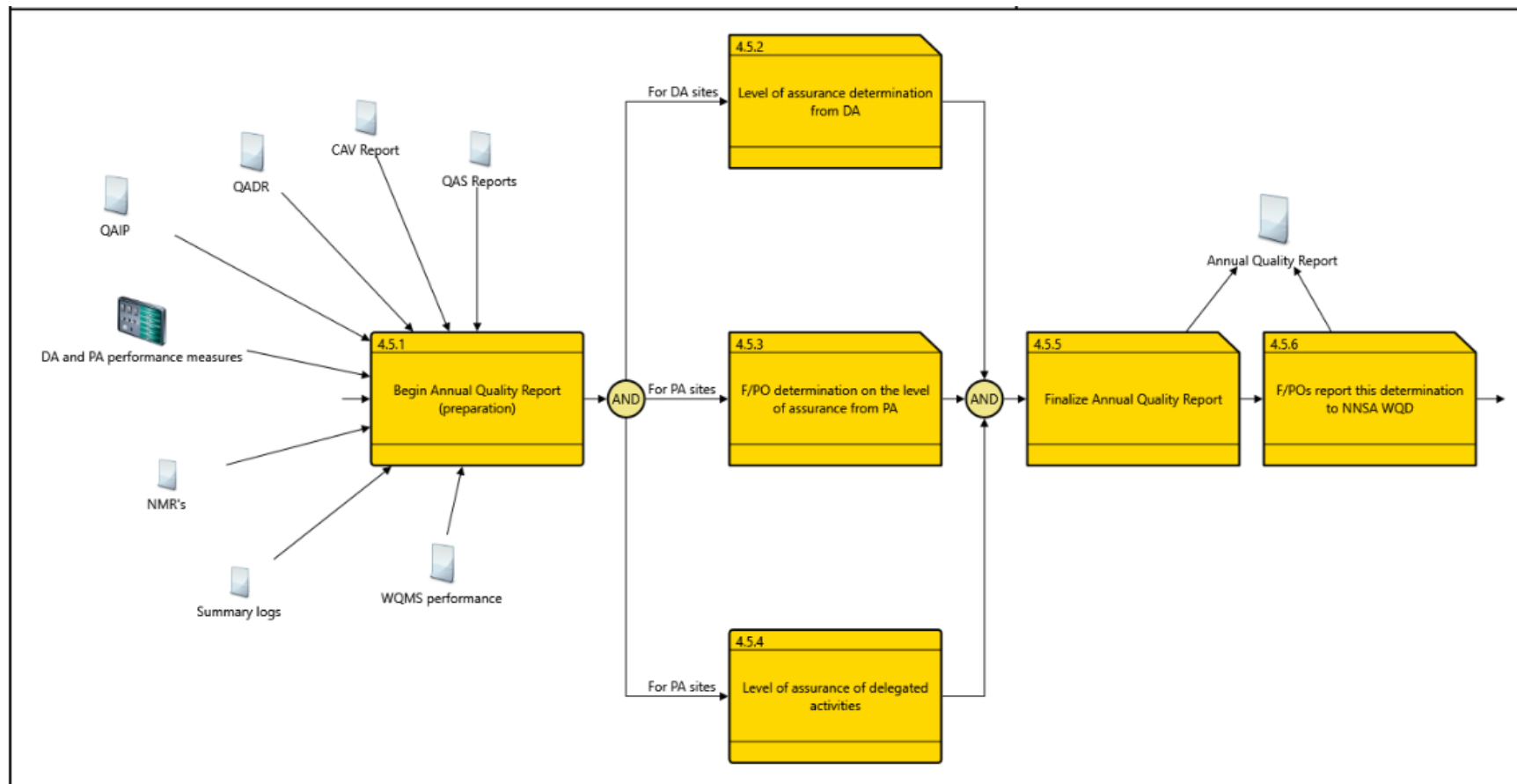


Figure 9. Section 4.5 Process Steps



## 5 Key Definitions

### 5.1 WQA Processes Glossary Terms

The following terms are for use with this content during review.

Term	Acronym	Definition	Source	Reason
Corrective Action Response	CAR	A PA documented response to identified nonconforming product that includes the PA investigating the defect to determine the root cause and extent of the nonconformance and the PA developing specific corrective action(s) and/or preventive action(s) to prevent recurrence.	WQA Processes	New
Factual Accuracy		A factual accuracy check provides the organization being audited the opportunity to review the information in the draft survey report to determine if the information that is in the survey report is factual. The factual accuracy process also enables the auditors to verify that they have obtained and considered all relevant information that will form the basis of the survey report.	WQA Processes	New
Incidental Defect		A defect that does not affect form, fit, function or traceability of the product that has been submitted. This might include cosmetic items or paperwork errors.	WQA Processes	Revision
Incidental Finding		Isolated instances of nonconformance that are easily corrected and will not have an immediate impact on cost, performance, or schedule.	WQA Processes	Revision
Open setup		The utilization of open setup mechanical M&TE (i.e., inside and outside micrometers, depth micrometer, dial indicators with gage blocks on surface plate, go-no-go gages, calipers etc.) or the utilization of electrical M&TE (i.e., ohm meters for voltage and resistance measurements) for verification activities.	WQA Processes	New
Quality Assurance Survey 1.0	QAS 1	NNSA WQD (or delegate) examines how effectively the F/PO or NNSA contractor implements, monitors, and improves the <u>WQMS</u> and its implementing policies, processes, and procedures, as well as the level of compliance with NNSA Weapon Quality requirements. These are performed on a risk-based frequency.	WQA Processes	Revision





Term	Acronym	Definition	Source	Reason
Quality Assurance Survey 2.0	QAS 2	Whereas a QAS 1 assesses the overall WQMS, a QAS 2 is generally focused on a specific system, <u>weapon program</u> , or major assembly (and various subassemblies). QAS 2s generally include multiple team members.	WQA Processes	Revision
Quality Assurance Survey 3.0	QAS 3	A QAS 3 scope is generally focused on an assembly or component, department, <u>process</u> , or product and is not as broad as a QAS 2. The size of the team depends on the scope of the survey and may include one or more auditors.	WQA Processes	Revision
Quality Assurance Survey 4.0	QAS 4	A QAS 4 scope is generally focused on a specific part, production or inspection <u>operation</u> , or a procedure.	WQA Processes	Revision
Stage QAIP		A product configuration that is desirable to inspect because specific features cannot be inspected at the next/final assembly.	WQA Processes	Revision

## 6 Traceability References

The following sources are referenced in this content:

- *R004: Weapon Quality Assurance Processes*



## Appendix A: Weapons Quality Assurance Process Templates

The templates in Table 3 are used throughout the WQA processes. Each item in the template column links to the named template.

Table 3. WQA Process Templates

Template	Model Location
<a href="#">Certificate of Inspection (COI)</a>	4.3.7.3.1.1
<a href="#">Quality Assurance Defect Report (QADR)</a>	QADR
<a href="#">Summary Log</a>	Fully.Accepted.5
<a href="#">NNSA Stamps and Part Marking</a>	Various Locations
<a href="#">Circle T Plan</a>	4.3.7.3.13.11
<a href="#">Nonconforming Material Report (NMR)</a>	4.4.3.1.5.3