Ideal state of quality assurance

April 2024

Fujikura Corporate Quality Management Unit

Explanation

- The Fujikura Group has implemented measures to prevent recurrence to prevent impropriety cases concerning quality (announced in 2018). However, several impropriety cases occurred in 2021 and 2022, and we have been reviewing our quality assurance activities and formulating guidelines. Based on impropriety cases's recent root cause and measures to prevent recurrence, we proposed "ideal state of quality assurance" at the Executive Committee meeting in August 2023 and obtained approval.
- Fujikura′s quality assurance activities aim to become ″ideal state″. The state mainly covers Fujikura′s Quality Management unit, QA Dept. of group companies under the Fujikura's business division, and QA Dept. of an independent company (AFL, FDC, FPCL, FES). Of course, the understanding of each business division and independent company is essential for implementation. Thank you for your cooperation.

This time, we have set up an ideal with the main purpose of preventing impropriety cases and breach of promices with customers.

“Ideal state" has been released to share the future vision, but it does not specify the level or timing of its achievement. The status of each organization is periodically grasped by Fujikura's Fujikura’s Quality Managgement unit, and the level of improvement is checked step by step.

We have explained this to some people within Fujikura and group companies, but we welcome your request to learn more and explain.

How to promote the "ideal state" policy

Penetration of "ideal state"

① Briefing sessions for each organization (Divisions, affiliates and their QA Dept.)

② Internal disclosure

The definitions of the terms to be included shall also be defined and published as FR.

Development and implementation of improvement plans

③ Formulation of additional future plans for current improvement activities

Reconceptualization of current status and development of improvement plans

④ Scoring each SBU and checking progress since the last time

Conducted about once a year

Fujikura's Quality Assurance Status

- Quality Assurance

  Systematic activities carried out by the organization to ensure, confirm, and demonstrate that products and services meet the needs of customers and society

- "Ensure" refers to activities that identify the needs of customers and society, plan and design products and services that meet them, and establish processes that can provide them.
- "Confirm" refers to activities that continuously evaluate and grasp whether the needs of customers and society are met, and if not, take immediate emergency measures and/or measures to prevent recurrence.
- "Demonstrate" refers to activities that clearly state what needs will be met as a promise to customers and society, show with evidence that they are kept, and provide a sense of trust and security.

Premise: Comply with quality compliance.

- Current status of Fujikura

  measures to prevent recurrence to prevent inpropriety cases were implemented after **the cases outbreak in 2018, but 9 new cases were discovered** between 2021 and 2023.

First, we will focus on the prevention of impropriety cases, clarify Fujikura's "ideal state" and clarify the direction of its activities.

Measures to prevent recurrence not running effectively

Considering the root causes of impropriety cases in recent years, there are some items of measures to prevent recurrence announced in 2019 that have not been effectively implemented.

■ Governance reforms

- [Ensuring the effectiveness of Quality Assurance across the Group] **Independence of QA**
  - Prohibition of organizational independence and concurrent posts in QA Dept.
  - Impropriety cases about circuit open
- [Strengthening of supervision and control by QA Dept.] **Independence of QA**
  - Confirmation of implementation of inspection in accordance with promise to a customers
  - Shipping permission for product
  - Preparation of documents such as inspection instruction
  - Impropriety cases about tensiometer calibration
  - Inconsistency of inspection method with customer requirements
  - Failure of inspection item's inspection instructions for customer requests
- [Strengthening of the quality assurance system at each site] **Digitalization for QA**
  - Introduction of system to prevent fabrication and falsification in inspection results
  - Impropriety cases about circuit open
  - Impropriety cases about fabrication in inspection results on the wire

Include the above items in ideal state of quality assurance.

Ideal state of quality assurance

1. Independence of QA
   - Establish the independence of quality assurance activities in order to embody "quality first" without being affected by factors other than quality.
2. Digitalization for QA
   - If the collection of inspection records can be automated, fabrication can be prevented by adding operational measures such as restricting access to inspection record storage sites and managing the revision history.
     If the collection of inspection records cannot be automated, operational measures to be taken to prevent data fabrication will be included in the “Instruction manual for digitalization for QA” and published.

The following pages provide detailed information on the above two items.
In the case of an independent company, replace "Corporate Quality Management Unit" with the QA Dept. of the independent company.

Independence of QA 1

Item	Sub-item	Supplementary explanation and scoring criteria (If the situation varies depending on the target product, the scoring for each product is multiplied by the estimated percentage.)
Independence of Fujikura's Quality Management Unit	Fujikura's Quality Management Unit is independent of its business division.	• This item is not subject to scoring. • The excective officer in charge of Quality Management Unit is not in charge of the business division.
Independence of QA Dept. in group companies	QA Dept. in group companies are under Quality Management Unit.	1.0 : QA Dept. in group company is under Fujikura's Quality Management Unit. 0.8 : QA Dept. in group company is directly under the president of the group company or the plant manager. 0.8 : Apart from QA Dept., which belongs to each business division, QA Dept., directly under the president of the group company, controls each QA Dept.. Zero : None of the above. • This item is separately specified for the Automobile Products Division. • This item is an ideal, and it is natural for overseas group companies that QA Dept. should be directly under the president of the affiliate.
	Members of the QA Dept. do not concurrently serve as business divisions.	1.0 : Members of QA Dept. does not concurrently serve as business division. Zero : The members also serve as business division.
	The activities of QA Dept. in group companies, are coordinated with each QA Dept. in Fujikura's Quality Management Unit.	1.0 : Regular / non-regular meetings are held at least twice a month. 0.5 : Meetings are held about once a month. Zero : The frequency of meetings is less than once a quarter.

Independence of QA 2

Item	Sub-item	Supplementary explanation and scoring criteria
Shipping permission by QA Dept.	The determination to ship the product will be made by QA Dept. (including group companies).	1.0 : QA Dept. is responsible for shipping permission for product , outgoing inspection work and certification of inspection workers and confirmation of the work procedure. 0.7 : Outgoing inspection operation is outsourced to the manufacturing Dept., but QA Dept. is certifying the inspection workers and confirming the operation procedure. 0.3 : QA Dept. does not sufficiently certify the inspection workers and conduct regular audits of the work. Zero : QA Dept. is not responsible for shipping permission for product.
	The organization/individual responsible for determining whether to ship the product is not responsible for scheduling and manufacturing technology in inspection process.	1.0 : The organization/individual determining whether a product can be shipped, is not responsible for the tasks of the left column. Zero : The organization/individual is responsible for the tasks of the left column.
Warehousing permission by QA Dept.	QA Dept. (including group companies) makes a comprehensive pass/fail determination on products based on the results of outgoing inspection, the status of periodical performance inspection, the status of 4M change applications and approvals.	1.0 : QA Dept. has the authority for determination for warehousing permission for product. , and the determination is based on the contents of the left column. Zero : None of the above.
	The operations division cannot store products in a warehouse without permission from QA Dept..	1.0 : In order for the operations division to process warehousing of products, QA Dept.'s warehousing permission is a necessary system. 0.5 : The above contents are carried out by oral confirmation. Zero : None of the above.

Independence of QA 3

Item	Sub-item	Supplementary explanation and scoring criteria
Incoming inspection pass/fail determination	Incoming inspection's acceptance or rejection of parts, materials, etc., is determined by QA Dept (including group companies).	1.0 : QA Dept. is making a pass/fail determination on incoming inspection. Zero : None of the above. • It does not matter which Dept. incoming inspection operator belongs to.
Separation of quality assurance and quality control operations	Calculation of process failure rate and internal failure cost and planning of measures for improvement are carried out by business divisions.	1.0 : The contents listed in the left column are implemented by the business division (manufacturing Dept., etc.). Zero : The contents listed in the left column are implemented by QA Dept. • It is not a problem for QA Dept. in affiliates, to submit to the head office the data after outgoing inspection defect rate and the process inspection defect rate are compiled.
	The limit samples approved by the customer are managed by QA Dept. (including group companies).	1.0: QA Dept. manages (Counting, reviewing, and updating lists) limit sample with customer approval. Zero: QA Dept. does not manage limit sample for internal use that does not require customer approval is exempt from this item. • In the absence of a limit sample, this item is exempt from scoring.
Test report creator / issuer	Test report for customer submission is created and issued by QA Dept. (including group companies).	1.0 : Test report for customer submission is created and issued by QA Dept. 0.5 : Test report prepared by a Dept. other than QA Dept. (engineering Dept., manufacturing Dept., etc.) was approved by QA Dept. after checking with inspection record and inspection standard. Zero : QA Dept. doesn't confirm test report.

Independence of QA 4

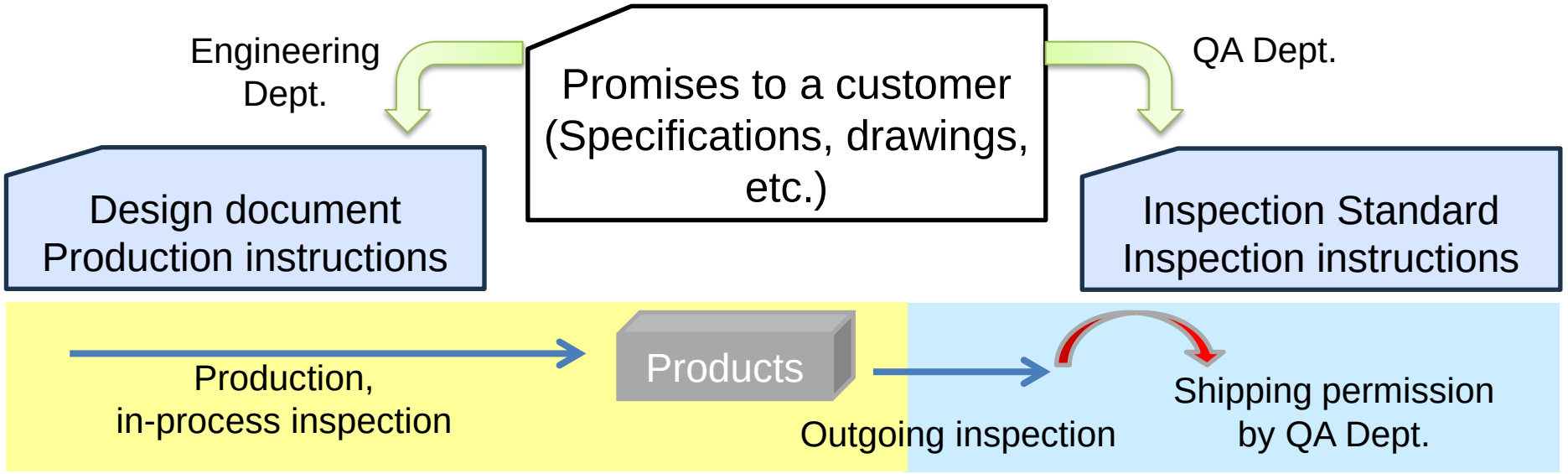
Item	Sub-item	Supplementary explanation and scoring criteria
Final approver of 4M change applications	QA Dept. of Fujikura's Quality Management Unit will make the final determination on the necessity of application to the customer at the time of 4M change *. *The content of change is related to the requirements in promise to the customer.	1.0 : Final approval of application/non-application is given by QA Dept. belonging to Fujikura's Quality Management Unit. 0.5: Final approval has been given by QA Dept. in affiliates. Zero: Approval from QA Dept. is not required.
	When the 4M change application is submitted to the customer, the product does not have a warehousing permission until the customer approve it.	1.0 : There is an automatic system that prevents products from being manufactured/warehousing permission until a customer approval is obtained. 0.5 : The status of 4M change application can be viewed by warehousing permittee in a shared file, etc. 0.3 : The number of 4M change applications is low, and QA Dept. checks the progress of applications individually at meetings. Zero : QA Dept. doesn't confirm it.
Final approver of concession applications to customers	Final approval of the need for concession application to customers for products that deviate from customers requirements specifications shall be given by the head of QA Dept..	Equivalent to "Final approver of 4M change application"
	When the application is submitted to the customer, the product does not have a warehousing permission until the customer approve it.	Equivalent to "Final approver of 4M change application"
Final approver of internal concession application	Internal concession's decision to approve products that meet customer specifications but do not meet internal specification is made QA Dept. belonging to Quality Management Unit.	Equivalent to "Final approver of 4M change application"

Independence of QA 5

Item	Sub-item	Supplementary explanation and scoring criteria
Issuance of inspection standard for outgoing inspection	QA Dept of Fujikura's Quality Management Unit, issues inspection standard for outgoing inspection.	1.0 : QA Dept of Fujikura's Quality Management Unit, issues all inspection standard, including group companies (manufacturing bases). 0.7 : QA Dept of Fujikura's Quality Management Unit, checks inspection standard issued by QA Dept. in group companies. 0.5 : Inspection standard is issued by QA Dept. in group, QA Dept of Fujikura's Quality Management Unit but does not confirme the contents. 0.3 : Inspection standard formulated outside QA Dept. is checked by any QA Dept.. Zero: QA Dept. does not formulate or check inspection standard.
	Create an inspection standard based on promise to a customer.	1.0 : Inspection standard is prepared based on promises to a customer (customer specification, specification to be submitted, submitted QC process chart, etc.). 0.7 : Group companies (manufacturing base) do not create inspection standard based on promises to a customer, but QA Dept. belonging to Fujikura's Quality Management Unit checks the contents of inspection standard based on promises to a customer. Zero : Inspection standard is not created based on promises to a customer.

Note: Creating inspection standard for outgoing inspection

- Products are manufactured according to the design documents created by the engineering Dept. based on promises to a customer.
- QA Dept. creates inspection standards for outgoing inspections based on promises to a customer and conducts outgoing inspections.
  - Breach of promises to a customer can be prevented by creating internal instruction documents based on the promises by two Depts.



Based on the product design results, if it is necessary for the design Dept. to add inspection item in addition to the items specified in the customer request and to set the standard value considering the margin, QA Dept. will finally check with contracts with customer that reflects inspection standard information and issue inspection standard.

Digitalization for QA 1

Item	Sub-item	Supplementary explanation and scoring criteria
Automatic collection of inspection records from the instrument	All measurement items can collect inspection records automatically from the instrument.	Zero ~ 1.0 : Percentage of instruments that inspection records can be collected automatically. Excluded from scoring: Inspection item which does not obtain the result as a numerical value, such as visual inspection and inspection using a dimension gauge, is not subject to automatic loading.
Fabrication protection for inspection records (Including cases where inspection record is not collected automatically)	In the process of collecting inspection records, measures are being taken to curb data fabrication.	This item shall not be subject to scoring for the time being. 1.0 : Collection of inspection records from the instrument is automatic and there is no room for fabrication by the operator in the data storage process. 0.5 : Collection of inspection records from the instrument is not automatic, but a check measure * is taken against data fabrication. *Video monitoring of inspection work, double checking of inspection results, special education for workers, etc. 0.5 : Collection of inspection records from the instrument is not automatic, but the standard value is not disclosed to the worker so as not to generate motivation of data fabrication. Zero : There is no measure to prevent data fabrication.
Inspection records storage and history management	Store inspection records in a database (*) that can perform history management. *The revision history and the information of the person who made the change remain as records.	1.0 : Inspection records used for shipping permission judgment is integrated into the database (multiple tables in one file) and history management is performed. 0.7 : Inspection records used for shipping permission judgment is integrated into the database, but history management is insufficient. 0.5 : Inspection records used for shipping permission judgment is integrated into the database, but history management is not possible. Zero : Inspection records are scattered by inspection item. Or, there are kept on some papers.

Digitalization for QA 2

Item	Sub-item	Supplementary explanation and scoring criteria
Automatic pass/fail determination of inspection item	When a lot number or the like is specified, a pass/fail determination is automatically made in an application linked with a database storing inspection records and inspection standards.	1.0: All inspection items (Both the items with inspection records as numeric data and the items with non-numeric data) necessary for shipment permission are stored in the database and pass/fail determination can be made automatically. 0.8: The items with inspection records as numerical data are automatically passed/failed decision, but the items with non-numerical data are not stored in the database, and pass/fail determination is made separately. 0.2: One of inspection standards and inspection records are not stored in the database, and a person checks both and makes pass/fail determination. Zero : Neither inspection standards nor inspection records are stored in the database.
Comprehensive pass/fail determination (warehousing permission)	Periodic performance inspection information and 4M change application information are stored in the database.	1.0: The database stores (or links) the necessity and implementation of periodical performance inspection, 4M change application information and approval information, and can be automatically determined that the product lot meets customer's requirements. 0.6: There is a rule to confirm the above information at the time of determination, and there is a mechanism to urge the system linked with the database to confirm. 0.3: There is no rule to confirm the above information at the time of determination, and it is necessary to search the documents separately. Zero : The above information cannot be confirmed in documents, etc., and is dependent on human memory.
	Keep records of periodical performance inspection and 4M change approval.	1.0: Periodical performance inspection's data and 4M change approval records can be tracked and confirmed from the database. 0.5: Periodical performance inspection's data and 4M change approval records are kept outside the database and can be tracked. Zero : The tracking can not be checked for periodical performance inspection's data and 4M change approval records.

Digitalization for QA 3

Item	Sub-item	Supplementary explanation and scoring criteria
Automatic issuance of test report	Automatically post the contents of the database to test report format of the product/customer. If test report submission to the customer is not required, it remains as a comprehensive pass/fail determination record.	1.0: Inspection records of the lot to ship is automatically posted to test report from inspection record database, and inspection record and lot number fields cannot be edited. 0.3: Test report is automatically created, but the posted information can be edited. 0: Test report cannot be automatically issued.
	inspection standard applied to past shipment lots can be referenced, and test report (or a comprehensive pass/fail record) can be issued retroactively.	1.0: Test report based on inspection standard applied to past shipment lots can be issued automatically. 0.7: Test report can be issued automatically by re-entering inspection standard applied to past shipment lots separately. 0.5: There is a procedure in which inspection standard applied to past shipment lots can be checked from history and test report (determination result) can be performed manually. 0: It is not possible to check history of inspection standard applied to past shipment lots and issue retroactive.

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