

# Requirements to quality assurance while supplying equipment to the Russian objects of nuclear energy use

Nuclear Power Plant construction quality control



#### **Definition**

Quality

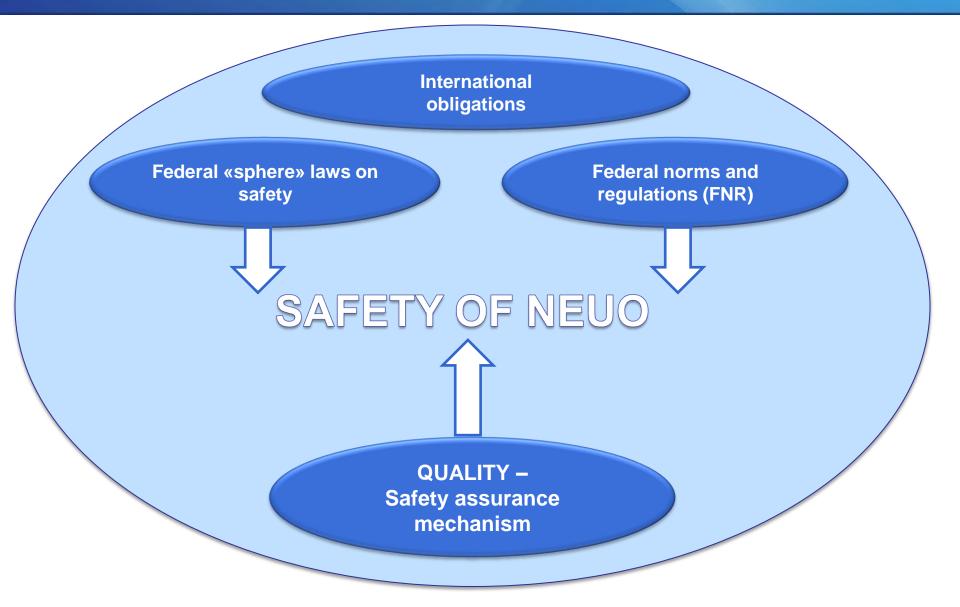


Degree of conformity of an aggregate of inherent characteristics to (preset) requirements

**GOST R ISO 9000-2008** 

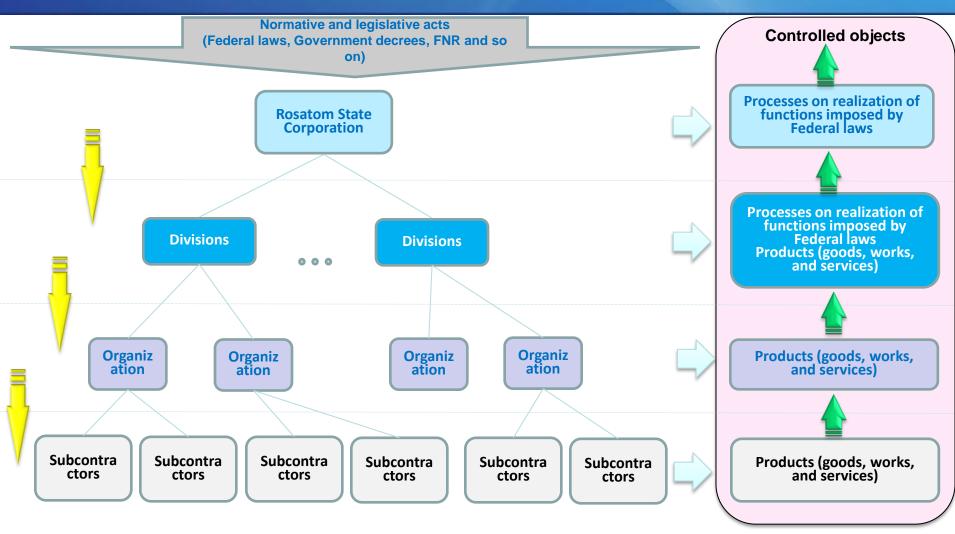


### Quality assurance – guarantee of safety of nuclear energy use objects (NEUO)





#### **QUALITY MANAGEMENT SYSTEM OF STATE CORPORATION «ROSATOM»**

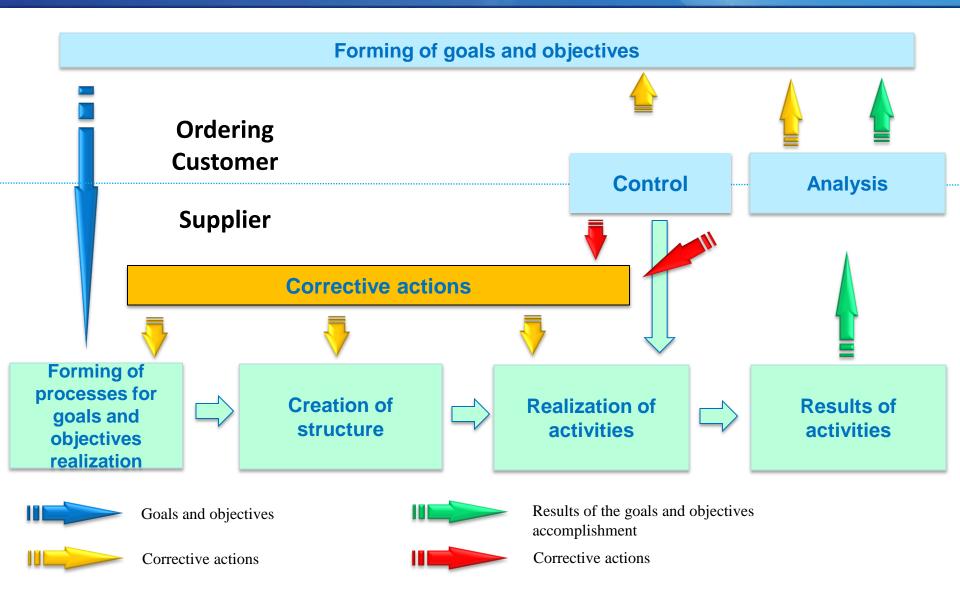








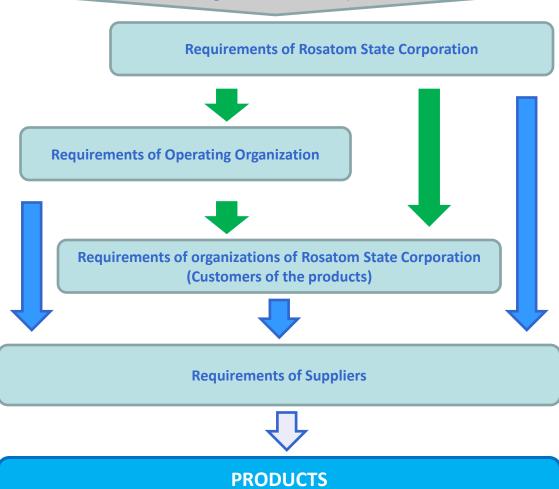
#### MODEL OF REALIZATION OF GOALS AND OBJECTIVES





### Requirements made to products (goods, works, and services)

Normative and legislative acts
(Federal laws, Government decrees, Federal norms and regulations, and so on)



(GOODS, WORKS, AND SERVICES)



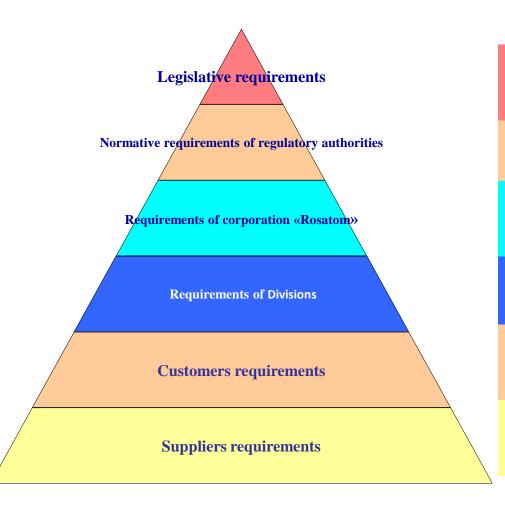
- Administrative management



- Contractual relations



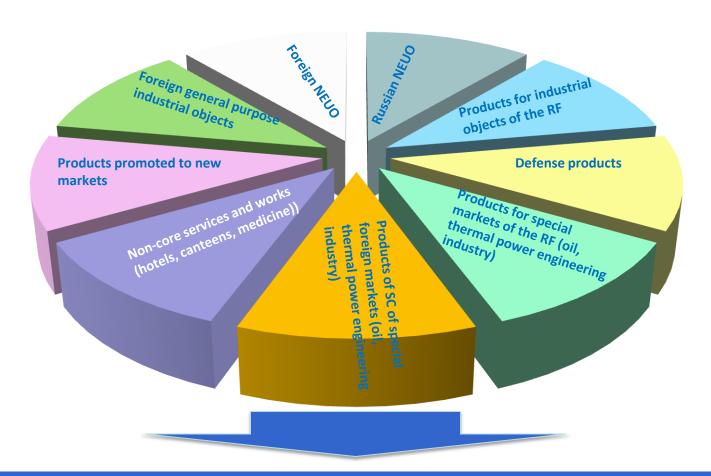
### Architecture of legislative, normative, administrative and contractual regulation of activities on quality management, assurance and control



- International conventions:
- Federal laws:
- Fundamental principles of the state policy in the field of assurance of nuclear and radiation safety
- Federal norms and regulations;
- Normative-legislative acts, enacted by orders of State Corporation «Rosatom»;
- Orders, regulations and instructions of State Corporation «Rosatom»,
- Requirements to activities on quality management, assurance and control
- Orders, regulations and instructions of **Divisions**;
- Requirements of agreements
- Orders and regulations of Customers;
- Requirements of agreements (include obligatory normative requirements, as well as specific requirements of the Customers)
- Orders, regulations and instructions of Suppliers;



### Differential approach while forming requirements to products (works, services)



Broad spectrum of objects of application sets conditions for the principle of differential approach to organization of quality management system



#### **Current transformation of normative requirements**

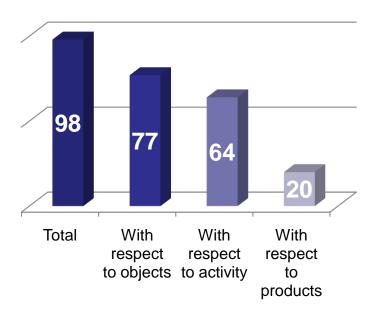
#### INTERNATIONAL NORMATIVE LEGISLATIVE ACTS NATIONAL LEGISLATION **FEDERAL NORMS AND REGULATIONS Documents on** National documents on standardization Requirements to products standardization in the field of NEU ISO 85 and IEC 45 **Requirements to objects** Organizational-methodological requirements GOST, GOST R, codes of Branch-wise classifiers, practice, and so on codifiers National technical regulations **DOCUMENTS ON** STANDARDIZATION IN THE FIELD OF NUCLEAR (standards, codes of **ENERGY USE** practice) **BRANCH-WISE NORMATIVE BASIS Documents of SC «Rosatom» Documents on** (Minsredmash, Minatom, technical **Documents of Divisions** FA Rosatom) - OST, ED regulation of the **Documents of organizations** CU, EurAsEC, CIS of SC «Rosatom» **bodies** Classifiers, Technical STD of enterprises codifiers regulations (standards of OE, Enterprise Standards, TS, (standards, codes of Methodologies) **DOCUMENTS OF SRO AND** practice) PROFESSIONAL ASSOCIATIONS



#### Normative requirements

### FNR in NEUO

Interdepartmental normative acts



Apart from that, there exist **3376** departmental normative documents (OST 95, ED 95, TS 95 and so on)

#### Technical regulations

Federal laws, Government decrees

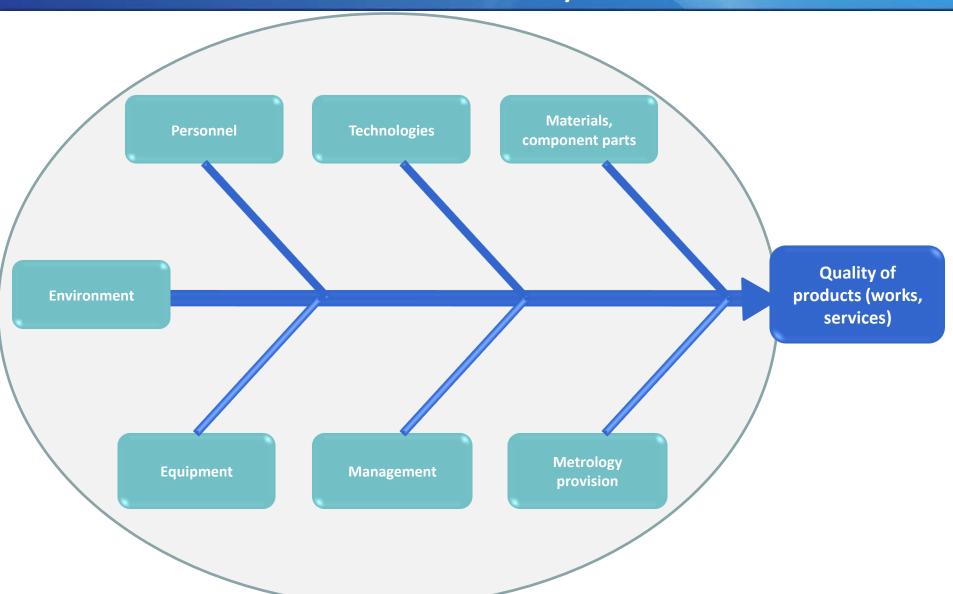
There are approved 24 technical regulations of the Russian Federation (13 are enacted; around 1000 documents on standardization, stipulating requirements to products, act on sub-legislative basis)

3 technical regulations of the Customs Union

There are being developed and enacted technical regulations of the **EuroAsian Economic Community** 



## Factors exerting influence on quality of products (works, services)





### **Scope of requirements**

Requirements to QMS.

Differential approach depending on safety category and product / divisional principle



Standard agreements on construction of NPP(Order of Rosatom State Corporation No 1/575-Π dated 16.12.2010)

FNR in the field of nuclear power use: NR-011-99, NR-041-02, NR-042-02, stipulating requirements to quality assurance programs



GOST R ISO 9001-2008 «Quality management systems. Requirements»

Requirements to products, works, and services



Stipulated in contracts/agreements concluded with Supplier



FNR in the filed of nuclear power use: ED 03-36-2002 and NR-071-99, stipulating requirements to procedure of carrying out of conformity assessment

Requirements to performance of conformity assessment



**Documents of EPT certification system** 



**National technical regulations** 

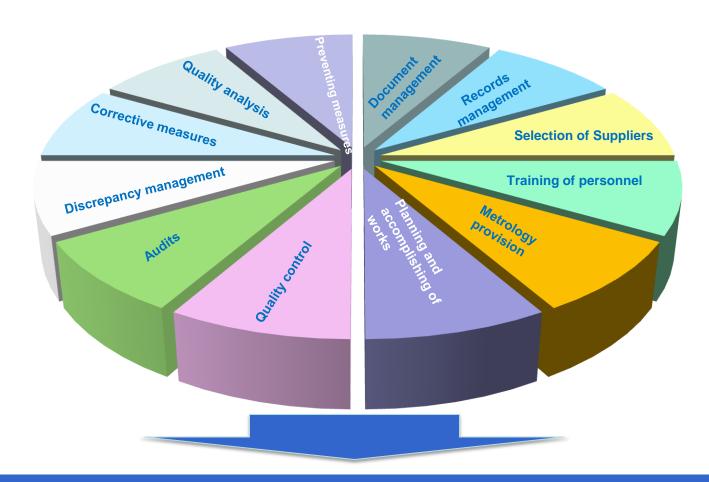
Requirements of Customer to production control execution and to activities relating to assurance of its quality



Stipulated in contracts/agreements concluded with Supplier and in documentation of Customer



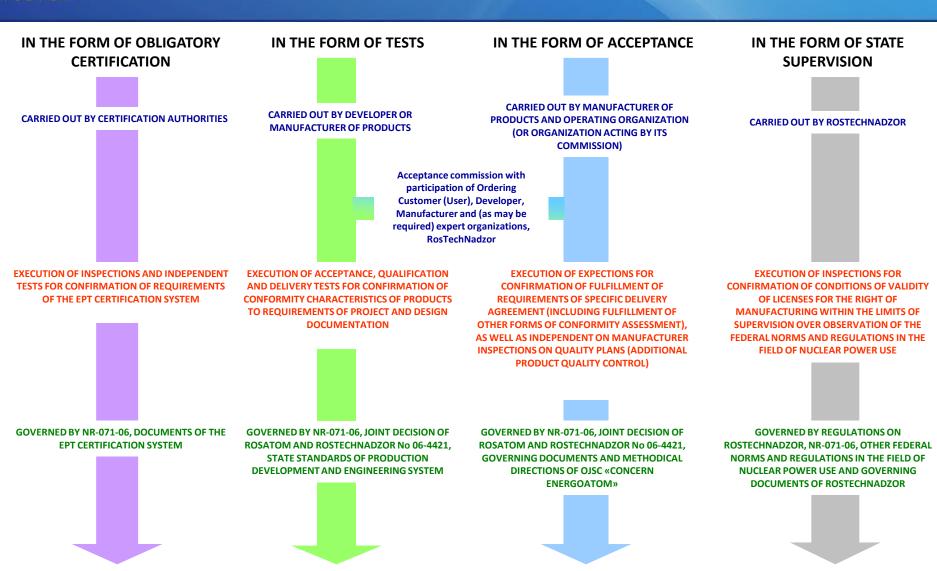
#### Kinds of activities on quality assurance



Broad spectrum of products (works, services) depending on application sets conditions for the principle of differential approach to forming of requirements to realized kinds of activities



#### **CONFORMITY ASSESSMENT**





### EXECUTORS, QUALITY CONTROL AND FORMS OF CONFORMITY ASSESSMENT IN THE NUCLEAR INDUSTRY

Technical control departments, factory laboratories, testing centers

Quality control,
Tests

#### **Supervisory bodies**

Conformity
assessment in the
form of state
control
(supervision)

#### **PRODUCTS**

Authorized
Organizations of
Operating
Organization

Consideration of documentation,
Acceptance,
Participation
in tests

Obligatory confirmation of conformity (certification / declaration)

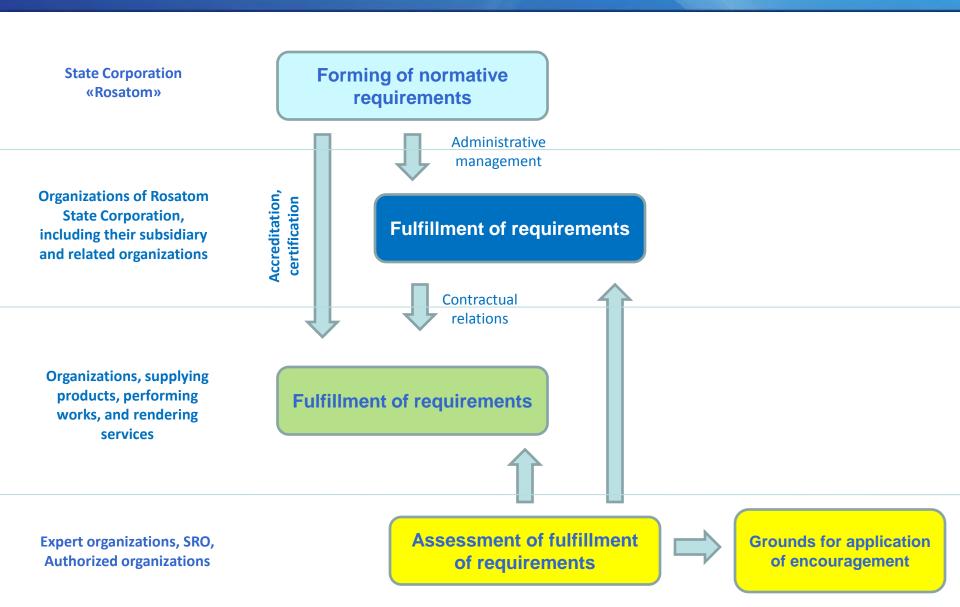
Commissions comprising representatives of operating organization,
Customer, Design Engineer in Charge, Chief Designer,
Manufacturer, Supervisory
Body

**Tests** 

Certification
Authorities
GOST R / EPT



### Mechanism of exerting influence on suppliers of substandard products (works, services)





# Thank you for your attention!