

PART IV—PROVISION OF INFORMATION

22.—(1) A design information to be provided to the Authority shall include—
 (a) in respect of each facility, prior to applying for a construction licence or implementing any change relevant to safeguards—

Design
Information.

(i) the identification of the facility, stating its general character, purpose, nominal capacity, geographical location and the name and address to be used for routine business purposes,

(ii) the form, location, flow of nuclear material and to the general layout of important items and equipment which use, produce or process nuclear material,

(iii) a description of the general arrangement of the facility with references to the extent feasible,

(iv) a description of features of the facility relating to material accountancy, containment and surveillance, and

(v) a description of the existing and proposed procedures at the facility for nuclear material accountancy and control, with special references to material balance areas establishment by the operator, measurement of flow and procedures for PIT ;

(b) information in respect of nuclear material outside facility shall include—

(i) a general description of the intended use of the nuclear material, its geographic location, and the user's name and address for routine business purposes,

(ii) the quality of the nuclear material, and

(iii) the time frame within which the nuclear material will be used, and

(iv) the system of accounting for and control of the nuclear material ; and

(c) general description of each building on each site, including a map of the site, its use and, if not apparent from that description, its contents.

(2) The licensee shall inform the Authority before any modification is made to the Facility, LOF or site, which may affect information submitted previously as described under this regulation.

(3) The updates of the design information mentioned in sub-regulation (1) of this regulation shall be provided to the Authority not later than 31st January each year for the period covering the previous calendar year.

23.—(1) The licensee shall provide to the Authority any information—

(a) identified by the Authority on the basis of expected gains in effectiveness or efficiency on operational activities of safeguards relevance at facilities and LOF where nuclear material is customarily used ;

(b) regarding the quantities, uses and locations of nuclear material exempted from safeguards ; and

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(c) regarding the quantities (which may be in the form of estimates) and uses at each location of nuclear material exempted from safeguards but not yet in a non-nuclear end-use form, in quantities exceeding those set out in Safeguard Agreements.

(2) The updates of the design information mentioned in sub-regulation (1) of this regulation shall be provided to the Authority not later than 31st January each year for the period covering the previous calendar year.

Future plans.

24.—(1) The licensee or any other entity in Nigeria shall inform the Authority before commencing any activity that is subject to these Regulations.

(2) The licensee shall also provide general plans for the succeeding ten-year period relevant to the development of the nuclear fuel cycle including planned nuclear fuel cycle-related research and development (R&D) activities.

Nuclear fuel cycle related R&D information.

25.—(1) The nuclear fuel cycle-related R&D activities are those activities which are specifically related to any process or system development aspect of any of the following—

(a) conversion of nuclear material ;

(b) nuclear fuel fabrication ;

(c) reactors ;

(d) critical facilities ; and

(e) processing (not including repacking or conditioning not involving the separation of elements, for storage or disposal) of intermediate high-level waste containing plutonium, high-enriched uranium or uranium-233.

(2) Any person or entity conducting nuclear fuel cycle-related R&D activities mentioned under sub-regulation (1) of this regulation involving or not involving nuclear material shall—

(a) furnish the Authority with a general description and information specifying the location of the nuclear fuel cycle-related R&D activities ;

(b) inform the Authority not later than 31st January each year of any modification affecting the information previously submitted ; and

(c) upon notification by the Authority, allow IAEA inspectors accompanied by representatives of the Authority and those persons specifically designated by the Authority, complete access under the terms agreed in the Additional Protocol.

Information regarding specified activities.

26.—(1) The specific nuclear fuel cycle-related activities are manufacturing, assembling or constructing of nuclear fuel cycle-related equipment, including—

(a) manufacture of zirconium tube ;

(b) manufacture of nuclear grade graphite ;

(c) manufacture of flasks for irradiated fuel ;

(d) manufacture of reactor control rods ;

(e) construction of hot cells ; and

Complementary access.

35.—(1) Upon notification by the Authority, the licensee shall allow IAEA inspectors access to any place on a site, any location identified in the information provided by Nigeria's Authorities to the IAEA pursuant to the Additional Protocol or any location identified by the IAEA as provided for in Article 5(c) of the Additional Protocol, within 24 hours of receipt by the Authority of the request or within 2 hours of receipt by the Authority of the request for access to any place on a site that is sought in conjunction with design information verification or ad hoc or routine inspections at that site.

(2) The licensee shall, pursuant to the provisions of sub-regulation (1) of this regulation permit the IAEA inspectors to perform the following activities during complementary access—

- (a) visual observation ;
- (b) conduct environmental sampling by collecting samples from air, water, vegetation, soil or smears from surfaces at locations beyond those to which inspectors have access to, for inspections and visits under the Safeguards Agreement ;
- (c) use radiation and measurement devices ;
- (d) apply seals and other identifying and tamper indicating devices ;
- (e) create records of observations including taking of photographs ; and
- (f) examine production and shipping records.

PART VI—OFFENCES AND PENALTIES

Offences and penalties.

36.—(1) A person who contravenes any of the provisions of these Regulations commits an offence and is liable on conviction to the penalties stipulated under the Act and any other extant law or guidelines made pursuant to the Act.

(2) Notwithstanding the provisions of sub-regulation (1) of this regulation, the Authority may impose penalties such as administrative fine, suspension, revocation of authorization, sealing of facility or any combination of these.

PART VII—MISCELLANEOUS

Guidelines.

37. The Authority may adopt and publish guidelines for the application of these Regulations by means of a technical recommendation and if necessary, update them, in the light of the experience gained, in consultation with the stakeholders, and after having obtained observation from interested parties.

Protection of confidential information.

38.—(1) The Authority shall protect any information, knowledge and documents acquired or obtained in the implementation of these regulations.

(2) The security of information transmission shall be agreed between the Authority and the person or entity concerned, and shall be in accordance with the IAEA requirements for the transmission of such information.

(b) the location, identify quantity and composition of all nuclear material subject to safeguards under the Safeguards Agreement and the Additional Protocol ; and

(c) information on the possible cause of MUF, shipper/receiver difference and uncertainties in the book inventory.

(2) A routine inspection may include, as appropriate—

(a) auditing of records and reports ;

(b) verification of the amount of safeguarded nuclear material by physical inspection, measurement and sampling ;

(c) examination of nuclear facilities, including a check of their measuring instruments and operating characteristics ; or

(d) checking of the operations carried out at nuclear facilities and at research and development facilities containing nuclear material subject to the Safeguards Agreement and the Additional Protocol.

32. The Authority shall conduct or facilitate IAEA routine inspections carried out without advance notification as a supplementary measure in accordance with the principle of random sampling.

Unannounced inspections.

33.—(1) An IAEA inspection shall be considered to be special where it is either additional to the routine inspection effort or involves access to information or locations additional to the access specified for ad hoc and routine inspections or both.

Special inspections.

(2) The Authority shall facilitate and cooperate with the IAEA in order to carry out special inspections to verify the information contained in special reports, or if the IAEA considers that information made available by the Authority or other State authorities including explanations from them and information obtained from routine inspections is not adequate for the IAEA to fulfill its responsibilities under the Safeguards Agreement.

(3) The arrival time of IAEA's inspectors in Nigeria for special inspections shall be given in advance notice as quickly as possible after the Authority and the IAEA have consulted.

34.—(1) The Authority shall facilitate IAEA technical visits to a facility, LOF and any other locations identified by the Authority and IAEA for purposes other than a safeguards inspection, design information verification or complementary access.

Technical visits.

(2) The purpose of the visit referred to in sub-regulation (1) of this regulation shall be for the examination and verification of information provided by the licensee, fact finding and technical discussions in connection with the development of safeguards approaches and implementation of these Regulations.

39. In these Regulations—

“*accounting records*” means a set of data kept at each facility or location outside facilities showing the quantity of each type of nuclear material present, its distribution within the facility or location outside facilities and any changes affecting it ;

“*Act*” means the Nuclear Safety and Radiation Protection Act No. 19 of 1995 ;

“*Additional Protocol*” means the protocol additional to the Agreement between the Federal Republic of Nigeria and the International Atomic Energy Agency (IAEA) for the Application of Safeguards in connection with the Treaty on Non-Proliferation of Nuclear Weapons (NPT) which entered into force on 4th April 2007 ;

“*applicant*” means any legal person who applies to the Nigerian Nuclear Regulatory Authority for authorization to undertake any of the actions described in these Regulations ;

“*Authority*” means the Nigerian Nuclear Regulatory Authority established by Section 1 of Act No. 19 of 1995 ;

“*authorization*” means a permission in the form of a registration or a license, granted in a document by the Authority to a legal person who has submitted an application to possess, produce, process, manufacture, purchase, sell, import, export, handle, use, transform, transfer, trade, assign, transport, store or dispose of radioactive material, radioactive waste, prescribed substances or any apparatus emitting ionizing radiation ;

“*batch*” means a portion of nuclear material handled as a unit for accounting purposes at a key measurement point (KMP) and for which the composition and quantity are defined by a single set of specifications or measurements and the nuclear material may be in bulk form or contained in a number of separate items including a fuel assembly, provided that items included in same batch are items containing nuclear material of the same element, concentration, enrichment, physical and chemical form ;

“*book inventory of an MBA*” means the algebraic sum of the most recent physical inventory of that material balance area (MBA) and of all inventory changes that have occurred since that physical inventory was taken ;

“*calibration*” means the process of determining the numerical relationship between the observed output of a measurement system and the value, based upon reference standards of the characteristic being measured ;

“*containment*” means structural features of a facility, containers or equipment which are used to establish the physical integrity of an area or items (including safeguards equipment or data) and to maintain the continuity of knowledge of the area or items by preventing undetected access to, or movement of, nuclear or other material, or interference with the items, which include the walls of a storage room or a storage pool, transport flasks and storage containers, etc. ;

“*domestic transfer*” means the transfer of nuclear material within Nigeria between different licensees in Nigeria ;

“*effective kilogram (ekg)*” means a special unit used in the safeguarding of nuclear material and the quantity in ‘effective kilograms’ is obtained by taking for—

(i) plutonium, its weight in kilograms,

(ii) uranium with an enrichment of 0.01 (1%) and above, its weight in kilograms multiplied by the square of its enrichment,

(iii) uranium with an enrichment below 0.01 (1%) and above 0.005 (0.5%), its weight in kilograms multiplied by 0.0001, or

(iv) depleted uranium with an enrichment of 0.005 (0.5%) or below, and

(v) for thorium, its weight in kilograms multiplied by 0.00005 ;

“*Environmental Sampling (ES)*” means the collection of environmental samples (like air, water, vegetation, soil and smears) by the IAEA of the Authority for the purpose of drawing relevant safeguards conclusions ;

“*facility*” means—

(i) a reactor, a critical assembly, a conversion plant, a fabrication plant, a reprocessing plant, an isotope separation plant or a separate storage installation, or

(ii) any location where nuclear material in amounts greater than one effective kilogram is customarily used ;

“*general ledger*” means a document on the changes in the accounted quantities of the individual categories of nuclear material in time, kept by a licensee and reflecting all changes in quantity or category of nuclear material which occurred since the most recent physical inventory of nuclear material ;

“*inventory change*” means an increase or decrease, in terms of batches, of nuclear material in an MBA which shall involve one of the following—

(i) *increases*—import, domestic receipt from other MBAs, nuclear production, accidental gain, retransfer from retained waste and de-exemption of nuclear material, and

(ii) *decreases*—export, domestic shipment to other MBAs, nuclear loss, other loss, measured discard, transfer to retained waste, exemption of nuclear material from IAEA safeguards, and termination of IAEA safeguards on nuclear material transferred to non-nuclear use;

“*licence*” means an authorization granted by the Authority on the basis of a safety assessment and accompanied by specific requirements and conditions to be complied with by the licensee ;

“*licensee*” means the holder of a current licence granted for a practice or source who has recognized right and duties for the practice or source, particularly in relation to protection and safety ;

“*Location Outside Facilities (LOF)*” means any installation or location, which is not a facility, where nuclear material is customarily used in amounts of one effective kilogram or less ;

“*Key Measurement Point (KMP)*” means a location where nuclear material appears in such a form that it may be measured to determine material flow or inventory. KMPs thus includes, but not limited to, the inputs and outputs (including measured discards) and storages in MBAs ;

“*List of Inventory Items (LII)*” means the facility operator’s record regarding the safeguarded nuclear material, which is provided to the IAEA or Authority inspector in advance of a PIV which include the LII, the measured values or derived estimates of each item of nuclear material physically present at the facility at the declared closing date of the material balance period, *i.e.* at the physical inventory taking (PIT) ;

“*Material Balance Area (MBA)*” means an area in or outside of a facility such that—

(i) the quantity of nuclear material in each transfer into or out of each MBA can be determined, and

(ii) the physical inventory of nuclear material in each MBA can be determined when necessary, in accordance with specified procedures, in order that the material balance for IAEA safeguards purposes ;

“*Material Unaccounted For (MUF)*” means the difference between book inventory and physical inventory ;

“*nuclear material*” means any source or any special fissionable material as defined in Article XX of the IAEA Statute, provided that—

(i) the term source material shall not be interpreted as applying to ore or ore residue, and

(ii) any determination by the IAEA Board of Governors under Article XX of the Statute after the entry into force of the Safeguards Agreement which adds to the materials considered to be source material or special fissionable material shall have effect under the Safeguards Agreement only upon acceptance by Nigeria ;

“*nuclear material accountancy*” means procedures for accounting for and control of nuclear material that shall be established and maintained by licensees at facility and location outside facility level to enable measurement and verification of flow and physical inventory of nuclear material by the Operator, Authority and the IAEA ;

“*operating records*” means a set of operating data kept at each facility for a period of at least 5 years on the operation of the facility, in connection with the use or handling of nuclear material ;

“*person*” means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, Government agency other than the Authority and any legal successor, representative, agent, or agency of the foregoing ;

“*physical inventory*” means the sum of all the measured or derived estimates of batch quantities of nuclear material physically present at a given time within an MBA, obtained in accordance with specified procedures, which is

determined by the facility operator as a result of a Physical Inventory Taking (PIT) and is reported to the Authority or IAEA in a Physical Inventory Listing (PIL) ;

“*Physical Inventory Listing (PIL)*” means a report provided by the Authority to the IAEA in connection with a PIT by the operator, listing all batches of nuclear material separately and specifying material identification and batch data for each batch ;

“*R&D*” means research and development ;

“*SAC*” means System of Accounting for and Control of Nuclear Material ;

“*Safeguards Agreement*” means the Agreement between the Federal Republic of Nigeria and the IAEA for the Application of Safeguards in connection with the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) which entered into force on 19th February 1988 ;

“*seal*” means a tamper-indicating device used by the Authority or the IAEA to join movable segments of containment in a manner such that access to its contents without opening the seal or breaking of the containment is difficult;

“*site*” means the area delimited in the design information for a facility, including a closed-down facility, and in the information on a location outside facility where nuclear material was customarily used, including such a closed-down location outside facilities with hot cells or where conversion, enrichment, fuel fabrication or reprocessing activities were carried out ;

“*source data*” means those data, recorded during measurement or calibration or used to derive empirical relationships, which identify nuclear material and provide batch data and may include, weight of compounds, conversion factors to determine weight of element, specific gravity, element concentration, isotopic ratios, relationships between volume and manometer readings and relationship between plutonium produced and power generated ;

“*source material*” means uranium containing the mixture of isotopes occurring in nature, uranium depleted in isotope 235, thorium, in the form of metal, alloy, chemical compound, or concentrate or any other material containing one or more of the foregoing in such concentration as the IAEA Board of Governors shall from time to time determine and such other material as the Board of Governors shall from time to time determine ;

“*special fissionable material*” means plutonium-239 ; uranium-233 ; uranium enriched in the isotopes 235 or 233 ; any material containing one or more of the foregoing; and such other fissionable material as the Authority shall from time to time determine based on the decision of the IAEA Board of Governors; but the term special fissionable material does not include source material ;

“*State System of Accounting for and Control of Nuclear Material (SSAC)*” means Nigeria’s system of accounting for and control of all nuclear material under the Safeguards Agreements, which includes the regulatory and control system established within the Authority for the implementation of Safeguards

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pursuant to the Safeguards Agreement and the Additional Protocol, as well as the measures referred to in Article 31 of the Safeguards Agreement ; and

“tamper-indicating device” means a device used on a container or containment in a manner that will provide an indication of any violation of the integrity of the container contents.

40. These Regulations may be cited as the Nigerian Nuclear Safeguards Regulations, 2021. Citation.

LICENCE APPLICATION FORM FOR HANDLING THE USE OF NUCLEAR MATERIAL

Name and Address of Applicant (the Legal Person)	Tel : Fax : e-mail :
Address of Premises where the radiation sources will be used and/or stored	Tel : Fax : e-mail:
Type of Application : A. New Authorization B. Amendment of existing Authorization (No.....) C. Renewal of existing Authorization (No)	Occupation and nature of business carried out in the premises mentioned above (e.g. Industrial, Medical, Academic etc.)

1. Types of Nuclear Material	
2. Quantity	
3. Physical form	
4. Chemical form	
5. Containment	
6. Irradiation Status and Quality	
7. Description of Use	
8. From (MBA) etc...	
9. To (MBA) etc...	

.....
Name and Signature of legal person

.....
Date

3.—MATERIAL BALANCE REPORT (MBR)

MATERIAL BALANCE REPORT (MBR) FORM R.03/C										
COUNTRY- NIGERIA						REPORTING PERIOD-				
FACILITY-						REPORT No-				
MATERIAL BALANCE AREA-						PAGE No.-		SIGNATURE-		
ENTRY No.	CONTINUATION	ENTRY NAME	ACCOUNTANCY DATA					CORRECTION TO		
			ELEMENT	WEIGHT OF ELEMENT	UNIT kg/g	WEIGHT OF FISSILE ISOTOPES (URANIUM ONLY) (G)	ISOTOPE CODE	CONCISE NOTE	REPORT No.	ENTRY NO.
1		PB								
2		BA								
3		PE								
4		RF	RAPE			-	-			
5		MF								

PB – Physical Beginning

BA – Book Adjusted

PE – Physical Ending

MUF – Material Unaccounted for

RAPE – Rounding Adjustment to Physical Ending

4.—CODES USED BY THE LICENSEE IN COMPLETING REPORTS TO THE AUTHORITY.

TWO-CHARACTER CODES USED FOR ACCOUNTING ENTRIES IN ICRs AND MBRs

<i>Type of Inventory Change</i>	<i>Code</i>
Receipt foreign (import into Nigeria)	RF
Receipt domestic	RD
Domestic receipt at starting point of safeguards	RS
Domestic receipt from non-safeguarded activity	RN
Nuclear production	NO
Shipment foreign (export from Nigeria)	SF
Shipment domestic	SD
Domestic shipment to non-safeguarded activity	SN
Nuclear loss	LN
Measured discard	LD
Transfer to retained waste	TW
Retransfer from retained waste back to safeguards	FW
Exemption from Safeguards based on use	EU
Exemption from Safeguards based on quantity	EQ
De-exemption from Safeguards, reapplication of safeguards (use)	DU
De-exemption from Safeguards, reapplication of safeguards (quantity)	DQ
Termination of safeguards for non-nuclear consumption	TU
Accidental loss	LA
Accidental gain	GA
Difference in the shipper/receiver measurement	D1
Decrease in batch content due to re-batching	RM
Increase in batch content due to re-batching	RP
<i>Category Change (result of blending, enrichment, depletion or burn-up)</i>	<i>Code</i>
Enriched to natural	EN
Enriched to depleted	ED
Natural to enriched	NE
Natural to depleted	ND
Depleted to enriched	DE
Depleted to natural	DN
<i>Other Codes for MBR</i>	<i>Code</i>
Initial Physical Inventory	PB
Final report inventory	BE
Adjusted final Book Inventory	BA
Rounding adjustment	RA
Final Physical Inventory	PE
Material Unaccounted For	MF

Data elements of the four-character material description codes indicating the physical and chemical form, containment and irradiation status, and quality of the nuclear material in the batch.

<i>Material form</i>	<i>Code</i>
Fuel rods, pins	ER
Fuel plates	EP
Fuel bundles	EB
Fuel assemblies	EA
Other fuel	EO
Homogenous powder	PH
Ceramic pellets	CP
Ceramic spheres	CS
Other ceramics	CO
Pure metal	PM
Metal alloy	MA
Nitrate solution	LN
Fluoride solution	LF
Other solution	LO
Homogeneous scrap	SH
Heterogeneous scrap	SN
Sealed source	QS
Small quantities (samples)	SS
Solid waste (fuel assembly hulls, cans)	AH
Solid waste, mixed (plastics, gloves, paper, etc.)	AM
Solid waste (contaminated equipment)	AC
Solid waste (other)	AO
Liquid waste (low level)	WL
Liquid waste (medium level)	WM
Liquid waste (high level)	WH
Ores	OR
Concentrates	YC
Uranium hexafluoride (UF ₆)	U6
Uranium tetrafluoride (UF ₄)	U4
Uranium dioxide (UO ₂)	U2
Uranium trioxide (UO ₃)	U3
Uranium oxide (U ₃ O ₈)	U8
Thorium oxide (ThO ₂)	T2
<i>Type of container</i>	<i>Code</i>
Cylinder	C
Parcel	P
Drum	D
Individual fuel assemblies	S
Special packing assuring sub criticality	B
Bottle or flask	F
Vessel, tank	T
Other	O

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<i>Material State</i>	<i>Code</i>
Fresh nuclear material, e.g. fresh fuel	F
Irradiated nuclear material, e.g. irradiated fuel	I
Irrecoverable material	N
Recoverable material	R
Retained waste	W
<i>Element Category</i>	<i>Code</i>
Plutonium	P
Enriched uranium	E
High enriched uranium (20% enrichment and above)	H
Low enriched uranium (higher than natural but less than 20% enrichment)	L
Natural uranium	N
Depleted uranium	D
Thorium	T
<i>Isotope</i>	<i>Code</i>
Uranium enriched in 235U	G
Mixture of 235U and 233U	J
Uranium containing 233U	K
<i>Measurement Method</i>	<i>Code</i>
Batch data based on fresh measurements at the Licensee	M
Batch data based on measurement made at another Licensee	N
Batch data based on earlier measurement at the same Licensee	T
Batch data based on earlier measurement at another Licensee	L

Made at Abuja this 11th day of January, 2021

MUHAMMADU BUHARI
*President of the Federal Republic of Nigeria
and Minister of Petroleum Resources*