Extraordinary



Federal Republic of Nigeria Official Gazette

No. 33 **Lagos - 20th February, 2023** **Vol. 110**

Government Notice No. 10

The following is published as supplement to this *Gazette* :

S. I. No.	*Short Title*	*Page*
4	Petroleum Measurement Regulations, 2023	B21-36

Printed and Published by The Federal Government Printer, Lagos, Nigeria
FGP 21/22023/350

Annual Subscription from 1st January, 2023 is Local : ₦50,000.00 Overseas : ₦65,000.00 [Surface Mail] ₦80,000.00 [Second Class Air Mail]. Present issue ₦3,000 per copy. Subscribers who wish to obtain *Gazette* after 1st January should apply to the Federal Government Printer, Lagos for amended Subscriptions.

PETROLEUM INDUSTRY ACT, NO. 6, 2021

PETROLEUM MEASUREMENT REGULATIONS, 2023

ARRANGEMENT OF REGULATIONS

Regulation :

PART I — OBJECTIVES AND APPLICATION

1. Objectives.
2. Application.

PART II — DUTIES AND OBLIGATIONS OF LICENSEES AND PERMIT HOLDERS

3. Duties of licensees and permit holders.
4. Duty to provide information.

PART III — MEASUREMENT STANDARDS AND METHODS

5. Measurement standards.
6. Classes of dynamic measurement.
7. Calibration and traceability.
8. Reference conditions.
9. Bypass of measurement system.
10. Measurement methods.

PART IV — DESIGN OF METERING SYSTEM AND ITS OPERATION

11. Metering System Design.
12. Testing, calibration and inspection of measurement system.
13. Operation and maintenance of measurement system.
14. Operations management and supervision metering systems.
15. Measurement loss and shrinkage.

PART V — MISCELLANEOUS PROVISIONS

16. Powers to make Guidelines, etc.
17. Fees.
18. Offences.
19. Interpretation.
20. Citation.

SCHEDULE

S. I. No. 4 of 2023

PETROLEUM INDUSTRY ACT, NO. 6, 2021

PETROLEUM MEASUREMENT REGULATIONS, 2023

[*9th Day of February*, 2023] Commencement.

In exercise of the powers conferred on it by sections 33 and 106(1) of the Petroleum Industry Act, No. 6, 2021 ("the Act") and all other powers enabling it in that behalf, the Nigerian Midstream and Downstream Petroleum Regulatory Authority ("Authority"), make the following Regulations —

PART I — OBJECTIVES AND APPLICATION

Objectives.

1.—(1) The objectives of these Regulations are to —

(*a*) regulate and ensure accurate measurement and allocation of natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products, or any other form of petroleum liquids ;

(*b*) determine the basis for calculating revenue accruing to government, licensees, contractors and other parties in midstream and downstream petroleum operations ; and

(*c*) provide sanctions and penalties for failure to comply with these Regulations.

Application.

2. These Regulations shall apply to static and dynamic measurements for natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products, or any other form of petroleum liquids.

PART II — DUTIES AND OBLIGATIONS OF LICENSEES AND PERMIT HOLDERS

Duties of licensees and permit holders

3.—(1) A licensee or permit holder to whom these Regulations apply shall —

(*a*) ensure that measurement systems are installed at the appropriate measurement points in midstream and downstream operations ;

(*b*) ensure that the provisions of these Regulations, guidelines or any other directive from the Authority are complied with ;

(*c*) ensure that its contractors, employees, agents, and any person acting for the licensee or permit holder comply with these Regulations, guidelines, or any other directives issued by the Authority ;

(*d*) appoint in writing, a competent person to be responsible for metering and allocation systems, and notify the Authority of the appointment and any subsequent change, not later than 72 hours of such appointment or change ;

(*e*) ensure that a person engaged in metering activities possesses the requisite qualifications and competences to perform the activities :

(*f*) ensure that a contractor or sub-contractor engaged in metering activities is registered with the Authority, and issued with an appropriate permit ;

(*g*) ensure that metering and allocation systems are designed, fabricated, inspected, tested, and installed in accordance with these Regulations and guidelines issued by the Authority ;

(*h*) ensure that measurement systems report, records and data are maintained as prescribed by the Authority for audit ; and

(*i*) ensure that its measurement operations are undertaken with valid and appropriate licences, permits or authorisations.

(2) Where a licensee or permit holder fails to install or operate measurement system at appropriate point, the Authority shall licence a third party to install or operate a measurement system, and the licensee or permit holder who has failed to install or operate the measurement system shall be responsible for the costs incurred by the third party to install such measurement system.

Duty to provide information.

4.—(1) A licensee or permit holder shall provide the Authority with information or data on —

(*a*) annual performance of measurement system ;

(*b*) annual maintenance plan and record for previous year ;

(*c*) malfunction of measurement system ;

(*d*) annual recertification notice ;

(*e*) annual totalizer measurement ;

(*f*) annual actual measurement ;

(*g*) report of maintenance work on flow computer and other metering system components ;

(*h*) petroleum liquids and natural gas handling agreements, including cargo loss claim ; and

(*i*) the performance of a newly installed metering system not later than three months after installation.

(2) The Authority may direct a person to provide information or data on any measurement operation and such person shall provide the information or data in the prescribed manner within the time frame stipulated in such directive.

Part III — Measurement Standards and Methods

Measurement standards.

5. The Authority shall approve standards and recommended practices to be used in the design, construction, modification, upgrade, operation, and maintenance of a measurement system.

Classes of dynamic measurement.

6.—(1) The classes of dynamic measurement based on their purpose of deployment are specified in the First Schedule to these Regulations.

(2) The uncertainty limit data analysis shall be developed for petroleum measurement systems within 95% confidence level in accordance with recognised standards and the uncertainty limits shall be prescribed by the Authority in guidelines.

(3) The points of deployment for dynamic measurement shall be for —

(*a*) custody transfer ;

(*b*) allocation ;

(*c*) fuel gas ; or

(*d*) flare gas.

(4) Notwithstanding the provisions of subregulation (3) of this regulation, measurement methods in crude handling agreements, crude transportation agreements, gas sales or supply agreements, gas transportation agreements, and other commercial agreements for midstream and downstream petroleum operations shall be as approved by the Authority.

Calibration and traceability.

7.—(1) The frequency of calibration of measurement systems shall be as prescribed in a guideline issued by the Authority.

(2) A licensee or permit holder shall ensure that measurements and calibrations made under these Regulations have traceability to national or international measurement standards.

(3) A licensee or permit holder shall ensure that an instrument used for calibration has traceability to national or international measurement standards.

(4) A third-party measurement laboratory used to calibrate equipment covered by these Regulations shall —

(*a*) be accredited in accordance with national and international recognised standards ; and

(*b*) have a documented uncertainty equal to or better than those set out in these Regulations.

(5) A licensee or permit holder shall ensure that a laboratory analysis of the composition or quality of natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products or any other form of petroleum liquids for custody transfer and allocation purposes is carried out by an accredited measurement laboratory and witnessed by the Authority.

Reference conditions.

8.—(1) The reference conditions for temperature and pressure to determine standard volume is 60 °F and 14.696 psia (101.325 kPa) for crude oil and condensate.

(2) A reference pressure other than 101.325 kPa may be used for natural gas liquid and liquefied petroleum gas.

(3) A reference temperature and pressure of 15°C and 101.325 kPa may be used for petroleum products and liquefied natural gas.

By-pass of measurement system.

9. The by-pass of a meter bank, dispensing pump, loading gantry, or provision for reverse flow through the meter bank of any measurement system is prohibited.

Measurement methods.

10.—(1) The primary measurement method for determining the quantities of natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products, or any other form of petroleum liquids shall be by dynamic measurement method.

(2) Notwithstanding the provisions of subregulation (1) of this regulation, where dynamic measurement method is not applicable, static measurement method shall apply subject to conditions prescribed by the Authority.

PART IV — DESIGN OF METERING SYSTEM AND ITS OPERATION

Metering System Design.

11.—(1) A metering system for measuring natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products or any other form of petroleum liquids shall not be designed without the approval of the Authority.

(2) A meter bank shall be designed to N+1 philosophy and make provisions for proving system.

(3) An application for approval under subregulation (1) of this regulation shall be accompanied with —

(*a*) the type of meter selected and selection criteria ;
(*b*) design philosophy ;
(*c*) fluid properties ;
(*d*) type of proving method ;
(*e*) location ; and
(*f*) project cost estimate.

(4) The design and location of a metering system shall be such that it is easily accessible for condition monitoring, maintenance, replacement, recertification, and repair works.

Testing, calibration and inspection of measurement system.

12.—(1) A licensee or permit holder shall not procure, fabricate, assemble, integrate, ship, install, modify, or commission a measurement system, sampling system, proving system, or flow computer without conducting appropriate tests, calibration, inspection and verification exercises.

(2) The Authority shall witness the activities stated in subregulation (1) of this regulation.

(3) The result of a test in sub-regulation (1) of this regulation at fabrication shop or site, shall be validated to ensure the system meets the requirements prescribed by the Authority.

(4) Measurement systems used for natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products, or any other form of petroleum liquids shall not be approved for shipment into Nigeria, without meeting the following minimum conditions—

(*a*) meters are tested and calibrated ;
(*b*) critical equipment are inspected and tested ;
(*c*) sampling devices are tested and calibrated ; and
(*d*) proving systems are inspected, tested and calibrated.

(5) Measurement systems used for natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products, or any other form of petroleum liquids installed in a vessel shall not be approved for sailing into Nigeria, without meeting the following minimum conditions —

(*a*) meters are tested and calibrated ;
(*b*) critical equipment are inspected and tested ;
(*c*) sampling devices are tested and calibrated ;
(*d*) cargo tanks are inspected and calibrated ; and
(*e*) proving systems are inspected, tested and calibrated.

(6) The Authority shall be present when an equipment or appliance for measuring or weighing natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products or any other form of petroleum liquids is being calibrated, recalibrated, tested, compared, measured or weighed against a standard approved by the Authority.

(7) Where a licensee or permit holder fails to test or recertify a measurement system, the Authority may, in addition to any penalty under these regulations, direct a third party to test and recertify such measurement system and the licensee or permit holder who has failed to test or recertify the measurement system shall be responsible for the costs incurred by the third party directed by the Authority to carry out the test or recertification.

Operation and maintenance of measurement system.

13.—(1) A licensee or permit holder shall not operate a measurement system without the authorisation of the Authority.

(2) A licensee or permit holder shall not commence the maintenance of a measurement system without the approval of the Authority.

(3) A licensee or permit holder shall, in the course of operating a measurement system, keep performance records of metering system, sampling system, proving system, dispensing system, flow computing system, and static measurement system in accordance with the requirements and conditions prescribed by the Authority.

(4) A licensee or permit holder shall not delete the records of any measurement system without the prior approval of the Authority.

(5) A licensee or permit holder shall keep and submit periodic measurement system data when requested by the Authority.

(6) All system diagnosis, modification, upgrade, and maintenance shall not be carried out without the approval of the Authority.

(7) A licensee or permit holder shall not make any alterations in the measuring or weighing equipment or appliances, including prover loop detector switch,or in the method of measurement or weighing without participation and approval of the Authority.

(8) A licensee or permit holder shall conduct meter linearity annually and the report of such exercise shall be approved by the Authority.

(9) A permit holder shall conduct master meter linearity in the manner prescribed by the Authority.

(10) A licensee or permit holder shall conduct uncertainty analysis for metering system in the manner prescribed by the Authority.

Operations management and supervision of metering systems.

14. The Authority shall have power to witness and supervise the development of metering systems through —

(*a*) meter selection ;

(*b*) conceptual design ;

(*c*) detailed engineering ;

(*d*) verification of accuracy of sampling systems, flow computers, gas chromatograph, proving systems and other critical components ;

(*e*) fabrication and inspection ; and

(*f*) factory and site acceptance tests.

Measurement loss and shrinkage.

15.—(1) Petroleum allocation methodologies shall be approved by the Authority prior to implementation.

(2) Cargo loss or shrinkage complaints shall be reported to and investigated by the Authority.

(3) A licensee shall not apply a shrinkage, measurement loss or decanting method to natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products or any other form of petroleum liquids without the prior approval of the Authority.

PART V — MISCELLANEOUS PROVISIONS

Powers to make Guidelines, etc.

16.—(1) The Authority may issue guidelines, directives, notices and metering codes for the effective implementation of these Regulations.

(2) Where no specific provision is made in these Regulations for any part of natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products or any other form of petroleum liquids measurement operations in Nigeria, subject to the approval of the Authority, practices conforming with international best standards shall be observed.

17. The fees in the Second Schedule to these Regulations shall be applicable to metering and measurement operations in midstream and downstream petroleum operations in Nigeria. Fees.

18.—(1) A person who — Offences.

(*a*) fails to obtain a licence, permit or authorisation required under these Regulations ;

(*b*) fails to provide information required under these Regulations ;

(*c*) makes a false declaration to the Authority or wilfully furnishes information so required which is false or insufficient ; or

(*d*) fails to comply with the provisions of these Regulations or any directive or condition of any permit or licence issued under these Regulations ;

may, without prejudice to the sanctions, fines and penalties contained in the Act, be liable to the relevant administrative penalties contained in the Third Schedule to these Regulations, and any licence, permit or authorisation granted to that person may be suspended or revoked.

(2) Where no specific penalty for an offence under these Regulations is provided in the Third Schedule to these Regulations, the Authority may impose an administrative penalty not exceeding USD 250,000.

19. In these Regulations — Interpretation.

"*accuracy*" means the ability of the measurement instrument to indicate value closely approximately the true value ;

"*Act*" means the Petroleum Industry Act, No 6, 2021 ;

"*accredited laboratory*" means a laboratory recognised and authorised by the Authority to perform calibration of measurement equipment or devices ;

"*allocation*" means an allotment of petroleum, petroleum liquids and natural gas within production facilities, pipelines, processing facilities, and storage facilities ;

"*allocation system*" means methods, measurements and estimates used for the allocation of petroleum and appurtenant documentation and procedures ;

"*Authority*" means the Nigerian Midstream and Downstream Petroleum Regulatory Authority ;

"*barrel* (*bbl*)" has the meaning ascribed to it in the Act ;

"*calibration*" means the process or procedure of determining the exact volume, capacity, or partial capacity of a standard capacity measure ;

"*competent person*" means a person appointed, with the approval of the Authority, by the manager in writing as a reliable person capable of exercising overall general supervisory responsibility in ensuring compliance with the provisions of these Regulations ;

"*critical component*" means component of the measurement or metering system that has direct impact on the functionality or output of the measurement system ;

"*crude oil*" has the meaning ascribed to it in the Act ;

"*custody transfer*" means change in ownership or responsibility irrespective of whether the transfer is within the same parent company or not ;

"*detector switch*" means a device that indicates the passage of a displacer in a prover ;

"*dynamic measurement*" means measurement under a flowing condition using meters ;

"*factory acceptance test*" means a test that is carried out at the fabrication shop or test yard on an equipment before shipment into the country or site ;

"*fiscal metering*" means metering carried out in connection with purchase, sale and the calculation of taxes and royalties ;

"*flare gas*" means natural gas burnt off or vented to the atmosphere ;

"*flow meter*" means a device for a continuous measurement or registration, and display of the amount of petroleum which flows through a pipeline ;

"*gas chromatograph*" means a device for measuring gas composition ;

"*inspection*" means examination of a product, process or installation to assess or determine its conformity with specific or general requirements ;

"*instrument*" means a device used for measurement and calibration ;

"*International measurement standard*" means a measurement standard acknowledged and recognised internationally as a point of reference for measurement and testing ;

"*licensee*" has the meaning ascribed to it in the Act ;

"*linearity*" means the total range of deviation of the accuracy curve from such a straight line between the minimum and maximum recommended flow rate ;

"*metering system*" means the meters, prover, instrument part, sampling system, flow computer, and other auxiliary equipment ;

"*N+1*" means the representation of an additional system to serve as redundancy ;

"natural gas" has the meaning ascribed to it in the Act ;

"*NGN*" means Nigerian Naira ;

"*petroleum*" has the meaning ascribed to it in the Act ;

"*petroleum liquids*" has the meaning ascribed to it in the Act ;

"*petroleum products*" has the meaning ascribed to it in the Act ;

"*permit holder*" means holder of a permit issued by the Authority to undertake an activity ;

"*proving system*" means system for validating the performance of a meter ;

"*repeatability*" means the ability of a meter and prover system to repeat its registered volume during a series of consecutive proving runs under constant operating condition ;

"*sampling device*" means equipment used for the collection of fluid sample from a system ;

"*sampling system*" means a system for the collection of sample from the fluid flowing in a pipe ;

"*site acceptance test*" means a test that is done on an equipment at the place of operation during commissioning ;

"*traceability*" means the quality of a measurement result to be linked to a reference standard through an unbroken chain of calibrations ;

"*uncertainty*" means an interval of value within which the true value is believed to lie within a stated probability ;

"*USD*" means United States Dollars ; and

"*verification*" means provision of evidence that a given equipment conforms to a specified requirement.

20. These Regulations may be cited as the Petroleum Measurement Regulations, 2023. Citation

FIRST SCHEDULE

CLASSES OF DYNAMIC MEASUREMENT

[*Regulation* 6(1)]

(1) CLASS A MEASUREMENT

The metering stations used for the delivery of fiscal metering of petroleum to customers and where sales contracts are applicable.

(2) CLASS B MEASUREMENT

The metering stations for the delivery of petroleum in commonly used pipeline systems and where allocation procedures or joint operating contracts apply.

(3) CLASS C MEASUREMENT

The metering stations for the delivery of fuel gas within the operator's operating facility or to third party facility.

(4) CLASS D MEASUREMENT

The metering station for midstream flare gas measurement.

(5) CLASS E MEASUREMENT

The weighing or metering station for petroleum based solid products measurement.

SECOND SCHEDULE

TABLE OF FEES

[*Regulation* 17]

S/N.	*Licence, Permit or Authorisation*	*Sertvice Charge*	*Application Fees*
1	Licence to Establish (LTE) a metering system.	USD 10.000	USD 2.300
2.	Licence to Construct (LTC) a metering system.	USD 10.000	USD 2.000
3.	Licence to Operate a LACT/Meter.	USD 10.000	N/A
4.	Calibration or Recertification of LACT.	USD 2500	N/A
5.	Calibration of Crude Oil Vessel Storage Tank- for vessels with capacity > 600.000BBLs.	USD 500 per tank	N/A
6.	Calibration of Crude Oil Vessel Storage Tank- for vessels with capacity between 20.001 to 600.000BBLs.	USD 300 per tank	USD Per Tank
7.	Calibration of Crude Oil Vessel Storage Tank- for vessels with capacity <= 20.000 BBLs.	USD 150 per tank	N/A
8.	Calibration of Truck.	NGN 5.000 per truck	N/A
9.	Terminal Storage Tank Calibration or Recertification (Crude Oil and Natural Gas).	USD 1.500 per tank	N/A
10.	Coastal Vessel Tank Calibration for dead weight of Vessel between 1-5,000MT (Petroleum products).	NGN 200,000 per vessel	N/A
11.	Coastal Vessel Tank Calibration for dead weight of Vessel between 5,001- 20,000MT (Petroleum products).	NGN 300,000 per vessel	N/A
12.	Coastal Vessel Tank Calibration for dead weight of Vessel between 20,001 and above (Petroleum Products).	NGN 400,000 per vessel	N/A
13.	Conformity Assessment.	USD 10,000	N/A

THIRD SCHEDULE

ADMINISTRATIVE PENALTIES

[*Regulation* 18(1) *and* (2)]

S/N.	*Offence*	*Unit*	*Amount*
1.	Engagement of non-Authorityaccredited contractors for fabrication, construction, calibration, testing etc. of any critical equipment or facility.	Per facility	USD250,000. In addition, suspension for a period of not more than one year.
2.	Using unapproved tank for storage hydrocarbon without approval.	Per tank	USD5,000.
3.	Using unapproved tank for storage or changing tank petroleum product without approval.	Per tank	NGN1,000,000.
4.	Modification, alteration, upgrade, etc. of LACT or measurement System (Export) without authorisation.	Per LACT System	USD250,000.
5.	Modification, repair, alteration of surface or underground hydrocarbon storage tanks without approval.	Per storage greater than or equal to 500 barrels	USD25,000 for crude oil tanks
6.	Installation, modification, repair, alteration of surface or underground petroleum products storage tanks without approval.	Per storage tank	NGN1,000,000.
7.	Failure to allow Authorityrepresentatives witness out-turn verification at the port of discharge.	Per loaded Vessel or shipment	USD250,000.
8.	Failure to apply the Authoritymethodology for determination and allocation of crude oil losses.	Per facility	Monetary equivalent of 30% of the total loss volume allocated at the prevailing oil price in USD.
9.	Failure to apply approved new base prover volume and meter factor from proving.	Per loading	USD250,000.
10.	Non-compliance with installation or tampering with Authority Locking Device (sea line Valves) on export pipeline.	Per Terminal	USD100,000.
11.	Tampering with metering systems or ancillary equipment without approval.	Per Meter	USD2,000,000
12.	Commissioning any critical equipment or facility e.g. valve, compressor, pump, sampler, etc. without approval.	Per equipment	USD50,000.

13.	Failure to display on operational tank in service "Tank Service", "Date of Calibration" and "Next Due Date of Calibration" for Crude oil and Natural Gas.	Per tank in service or operation.	USD100,000. Per Tank
14	None display on operational tank in service "Tank Service", "Date of Calibration" and "Next Due Date of Calibration for Petroleum Products.	Per tank in service or operation	NGN1,000,000 Per Tank
15.	Installation of LACT System at Export terminals or Custody transfer point without approval.	Per month	USD75,000.
16.	Non-Compliance with frequency of calibration of measurement, dipping tape, Ullage Transmitting Instrument (UTI), Temperature or Pressure Gauges, Transmitters, probes, etc.	Per Equipment	USD5,000
17.	Falsification of proving system calibration or meter proving reports.	Per Prover or Meter	USD250,000
18.	Failure to calibrate or recertify metering system ancillary equipment (temperature and pressure gauges, transmitters, etc.).	Per Equipment	USD5,000
19.	Failure to Recertify Prover Loop when due.		USD175,000 Per Annum
20.	Failure to Recertify Auto sampler when due.		USD50,000 Per Annum
21.	Failure to carry out statutory meter proving when due.	Per Meter	USD20,000 per proving frequency in addition to any other sanctions by The Authority.
22.	Procurement of critical equipment without Test.		NGN 5,000,000
23.	Measuring petroleum at custody transfer or sales points with faulty or uncalibrated measuring equipment, Ullage Transmitting Instrument (UTI) or metering system.		USD 10,000 and seizure of faulty measuring instrument
24.	Measuring petroleum products with faulty or uncalibrated measuring equipment or Ullage Transmitting Instrument (UTI).		NGN 100,000 and seizure of faulty measuring instrument
25.	Conducting a factory acceptance test or site acceptance test of any critical equipment without authorisation and witnessing by officers of the Authority.		USD 250,000

26.	Installation or tampering with dispensing pump or loading gantry without authorisation.	Per pump	NGN 500,000
27.	Introduction of dead woods, capillary tube or false bottom in crude oil storage tanks.	Per storage greater than orequal to 500 barrels.	USD25,000

MADE at Abuja this 9th day of February, 2023.

ENGR. FAROUK AHMED
Authority Chief Executive
Nigerian Midstream and Downstream Petroleum Regulatory Authority

EXPLANATORY NOTE

(This Note does not form part of the above Act but is intended to explain its purport)

These Regulations seeks to regulate and ensure accurate measurement and allocation of natural gas or its derivatives, crude oil or its derivatives, condensate, petroleum liquids, petroleum products or any other form of petroleum liquids ; determine the basis for calculating revenue accruing to government, licensees, contractors and other parties in midstream and downstream petroleum operations ; and provide sanctions and penalties for failure to comply with these Regulations.