



NIGERIAN INDUSTRIAL STANDARD **NIS-554-2015**

Nigerian Standard for Drinking Water Quality

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Approved By SON Governing Council

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Foreword

Drinking water quality standard ensures the safety of the drinking water supplies and the protection of public health. The establishment of Nigerian Standard for Drinking Water Quality (NSDQW) will ensure the protection of the consumers. It is expected that the Nigerian Standard for Drinking Water Quality will speed up the process of upgrading non-protected water systems and improving the management of all drinking water systems in the country.

Consensus on the content of the first edition of Nigerian Standard for Drinking Water Quality was reached through extensive consultations with all stakeholders including development partners with responsibilities in the management of water quality. This standard is therefore based on general principles of preventive, integrated and collaborative multi-agency approach.

The Nigerian Standard for Drinking water Quality was revised in order to provide workable strategies that will enhance the implementation and enforcement of the requirements of the Standard. Responsibility for lead institution enforcing Nigerian Standard for Drinking Water Quality has been reassigned in this second edition. There are significant changes in revision period, maximum allowable limit for magnesium, and criteria for compliance and enforcement. This edition also includes formats for Non-conformity Report and reporting of water quality forms.

This standard sets parameters and maximum allowable limits in drinking water in Nigeria. It also includes normative references/laws guiding drinking water quality, definition of terminologies, institutional roles and responsibilities, monitoring, data management and compliance criteria.

In developing this Standard, references were made to the Nigerian Industrial Standards for Potable Water and Natural Mineral Water, various national legislations (see Annex 2), the National Guidelines and Standards for Water Quality in Nigeria, the World Health Organisation (WHO) guidelines for drinking water quality (3rd Edition), International Organisation of Nigeria (ISO).

1. Introduction

1.1 The Importance of Nigerian Standard for Drinking Water Quality

Nigerian Standard for Drinking Water Quality (NSDWQ) contains mandatory limits concerning constituents and contaminants of water that are known to be hazardous to health and/or give rise to complaints from consumers. The standard includes a set of procedures and good practices required to meet the mandatory limits.

1.2 Drinking Water Quality Standard Used in Nigeria

In 2005, the National Council on Water Resources (NCWR) recognized the need to urgently establish acceptable Nigerian Standard for Drinking Water Quality because it was observed that the “Nigerian Industrial Standard for Potable Water” developed by Standards Organisation of Nigeria and the “National Guidelines and Standards for Water Quality in Nigeria” developed by Federal Ministry of Environment did not receive a wide acceptance by all stakeholders in the country.

Since water quality is health related issues, Federal Ministry of Water Resources and the Federal Ministry of Health in collaboration with the Standards Organisation of Nigeria (the only body responsible for developing National Standards in Nigeria) and working through a technical committee of key stakeholders developed this Standard.

1.3 Principles

The effective protection of public health against water related diseases (i.e. waterborne, water washed, water based and water vectored) requires a preventive integrated management approach, these includes

- (a) The protection of drinking water from catchments and source to its use by consumers
- (b) A collaborative multi-agency approach that involve all agencies with responsibilities in the management of water quality.
- (c) Water quality standard that is comprehensive, realistic and implementable within the resources of the implementing agencies.
- (d) The development of procedures and requirements that ensure good water quality management in order to meet the maximum allowable limits. These procedures also protect the environment
- (e) An independent surveillance agency with strong enforcement authority and functions decentralized to local government level.

- (f) An effective drinking water quality data management system to enable generation of data for the development of coherent public health-centred policies and practices

1.4 Technical Approach

The selection of parameters and the determination of maximum allowable limits have been conducted taking into consideration the WHO guideline for drinking water quality.

1.5 Revision Period

The standard shall be reviewed every five years and/or as when necessary. The Technical Committee shall meet once a year to address new water quality issues and to prepare for the review of the Nigerian Standard on Drinking Water Quality. The Technical Committee shall have a Steering sub-committee that meets regularly.

1.6 Scope

The Nigerian Standard for Drinking Water Quality covers all drinking water except mineral water and packaged water.

The standard applies to:

- Drinking water supplied by State Water Agencies,
- Drinking water supplied by community managed drinking water systems
- Drinking water supplied by water vendors and water tankers
- Drinking water used in public or privately owned establishments
- Drinking water used in food processing by manufacturers
- Drinking water from privately owned drinking water system and use solely for the family residence

Mineral water and packaged water shall comply with Nigerian Industrial Standards for Natural Mineral Water - NIS 345: 2008 and Potable Water - NIS 306: 2008 and used for regulation and certification by the National Agency for Food and Drug administration and Control and SON respectively (It is important to mention here that the standards for mineral water and packaged water have different allowable limits for various parameters presented here).

2. Normative References

- (i) NIS 306: 2008 - Nigerian Industrial Standard for Portable Water
- (ii) NIS 345: 2008 - Nigerian Industrial Standard for Natural Mineral Water
- (iii) NIS ISO/IEC 17025: 2005 – General Requirements for the Competence of Testing and Calibration Laboratories
- (iv) Consumer Protection Council Act 66 (1992)
- (v) Standards Organisation of Nigeria (SON) - Retained as Cap 412

3. Terminology

For the purpose of this standard, the following expressions have the meaning stated below:

3.1 Community Managed Water Systems

On-site or centralized drinking water systems protected, operated and maintained (small maintenance only) by community water committee.

3.2 Contaminant

Any chemical or substance present or released or added into drinking water which is capable of being hazardous to health

3.3 Drinking Water

3.3.1 All water either in its original state or after treatment, intended for drinking, cooking, food preparation or other domestic purposes, regardless of its origin and whether it is supplied from a drinking water system, or a tanker, or taken from a private well.

3.3.2 All water used in any food production undertaking for the manufacture, processing, preservation or marketing of products or substances intended for human consumption

3.4 Drinking Water Quality Control

Water tests conducted on routine basis by the water utility to ensure that water supplied to the consumers meets the standard.

3.5 Drinking Water Quality Surveillance

Water quality tests, sanitary inspections and spot checks conducted by the Federal Ministry of Water Resources to ensure that water utilities and others suppliers meet the requirements of the Standard.

3.5.1 Water Quality Approval

Routine water quality examination carried out in line with the minimum requirement specified in Table 7 of the Standard shall be certified for approval

3.5.2 Non Conformity Report

Non-conformity report is a report issued to a water provider that has not met the requirements of the standard.

3.6 Drinking Water Service Level

Measure of quality, quantity, accessibility, coverage, affordability and continuity of drinking water supplied to the population. Water service levels are defined in the National Water Supply Policy and sanitation Policy.

3.7 Drinking Water Service Provider

The whole set of organization, processes, activities, means and resources necessary for abstracting, treating, distributing or supplying drinking water and for providing the associated services. The Drinking Water Service Providers are

3.7.1 State Water Boards/Corporations, which mostly serve urban areas greater than 20,000 inhabitants

3.7.2 Small Water Town Agencies, which mostly serve semi-urban areas with population between 5,000 to 20,000 inhabitants

3.7.3 Rural Water Supply and Sanitation Agencies operate in rural areas and usually serve communities of below 5,000 inhabitants.

3.7.4 Corporate/Private suppliers of water

3.8 Drinking Water System

Tangible assets necessary for abstracting, treating, distributing or supplying drinking water. Drinking water systems include centralized and on-site systems:

3.8.1 Protected on-site drinking water systems are:

- (i) Protected hand dug wells with or without hand pump
- (ii) Protected spring catchments
- (iii) Borehole equipped with hand pump
- (iv) Protected harvested rain water with or without pump

3.8.2 Protected centralized drinking water systems are:

- (i) Mechanized borehole with distribution system
- (ii) Surface water intake, treatment and distribution system

3.9 Laboratory Quality Assurance

Minimum requirements regarding staff qualification, analytical method, sampling procedures, calibration procedures, quality control, preventive maintenance and record keeping procedures that a laboratory has to comply with to ensure reliable and accurate results

3.10 Maximum Permitted or Allowable Limits

Maximum concentration of microbiological, chemical and organic constituents / contamination allowed in drinking water. These concentrations are based on WHO guideline value for which no adverse health effect is noticed.

3.11 Mineral Water

Potable water that meets the requirements of the Nigerian Industrial Standard for Natural Mineral water - NIS 345: 2008

3.12 Packaged Water

Potable water that meets the requirements of the Nigerian Industrial Standard for Potable Water - NIS 306: 2008

3.13 Point of Delivery

Physical fixed interface beyond which the water service provider is not legally responsible for the service.

3.14 Point of compliance

Points where the surveillance agency collects water samples in order to measure compliance with maximum allowable limits.

3.15 Private Drinking Water System

Drinking water systems owned by a private person(s) and use solely for the family residence.

3.16 Protection Zone

Defined area surrounding a water source where activities that may affect water quality are restricted or prohibited

3.17 Public or Privately Owned Establishment

Establishment where water is supplied to the public, such as secondary schools, university, hospitals, restaurants.

3.18 Sanitary Inspections

Inspections used to evaluate the likelihood of contamination of water

3.19 Sanitary Surveys

The evaluation of the water source and intake structure, the treatment and conditioning process, the facilities and components and also an evaluation of the distribution system

3.20 Sources of Contamination

Release into the environment of man-made chemical and bacteriological contaminants. Major contamination sources are animal and human wastes, industry and mining activities, agriculture and accidents and leaks such as oil spillage.

3.21 State Urban Water Supply Regulators

Independent regulatory bodies that monitor the performance of water utilities or any other water supply operators and ensure that the water supply complies with quality standard and service levels

3.22 Toxic element

Organic or inorganic constituents that may adversely affect human health when its concentration in water reaches a specific threshold.

3.23 Water Source: means either groundwater or surface water

- Surface water includes streams, rivers, lakes or reservoirs.
- Ground water includes springs, wells or boreholes

3.24 Water Safety Plan

Essential actions that are the responsibility of the drinking water provider in order to ensure that drinking water is safe. These are:

- a system assessment;
- effective operational monitoring; and
- management

3.25 Water Vendors

These are persons or organizations selling water to households or at collection points. Vendors may carry drinking water for sale directly to the consumer by tanker trucks, wheelbarrows /trolleys or donkey carts.

3.26 Owner of the system

The one that owns and manages the system

4. Institutional Frame Work: Roles, Rights and Responsibilities

4.1 Roles of Federal/State Ministry of Water Resources

Federal Ministry of Water Resources shall be responsible for Drinking Water Quality Surveillance in Nigeria and shall be the lead institution enforcing Nigerian Standard for Drinking Water Quality.

Federal Ministry of Water Resources shall strengthen the existing-Department of Water Quality Control and Sanitation and the National Reference Water Quality Laboratories solely responsible for Drinking Water Quality Surveillance and Enforcement.

At Federal level, Department of Water Quality Control and Sanitation shall be responsible for developing Drinking Water Quality Surveillance and Enforcement Strategy, developing drinking water quality surveillance and enforcement procedures, communicating drinking water quality data to stakeholders and consumers, establishing national priorities in the sector of Drinking Water Quality Surveillance.

At state level, the Department in charge of water quality shall be responsible for implementing strategies and procedures issued at Federal level.

The Federal Ministry of Water Resources Department of Water Quality Control and Sanitation shall include professionals skilled in the disciplines of drinking

water treatment, water quality testing, water quality inspection, public health, enforcement, data management and communication.

The State Department/Division in charge of Water Quality Control shall include in addition a pool of inspectors in charge of drinking water quality investigations, water sampling and sanitary inspection, control and enforcement of water safety plans and enforcement of Nigerian Standards for Drinking Water Quality in the whole state (The local government Water Sanitation and Hygiene (WASH) Unit and Communities shall be involved).

Federal and State Departments in charge of Water Quality Control shall promote NSDWQ, inform consumers on the health risks linked to poor water quality consumption, publish drinking water quality results for stakeholders and make results available to consumers in an understandable way.

Federal and State Departments of Water Quality Control shall use existing *National Reference Water Quality Laboratories* to perform tests for Drinking Water Quality Surveillance. Only qualified/certified laboratories and personnel shall be *appointed* to perform water quality testing for Drinking Water Quality Surveillance

Federal and State Department in charge of Water Quality Control shall establish and manage a drinking water quality data base accessible to stakeholders and provide the data to the National Bureau of Statistics.

The Federal Ministry of Water Resources through Nigeria Integrated Water Resources Management Commission (NIWRMC) shall develop procedures for the siting of new water sources for drinking water supply (good practices for water catchments).

Federal Ministry of Water Resources through the Departments of Water Supply and Dams and Reservoir Operations where necessary shall develop construction guidelines for water facilities and treatment requirements.

State Ministry / Agency in charge of Water Resources shall ensure that procedures developed by Federal Ministry of Water Resources are implemented and shall supervise the elaboration of Water Safety Plans by Water services providers (including State Water Agencies) and Water Safety Plans shall be validated and enforced by the State Ministry of Water Resources or State Agency responsible for water quality control.

4.2 Roles of Federal/State Ministry of Health

The Federal Ministry of Health shall in collaboration with Federal Ministry of Water Resources, participate in Drinking Water Quality Surveillance in Nigeria.

The Ministry of Health shall support the drinking water quality management function by collecting information on the incidence of waterborne diseases (for example, diarrhoea) and the use of this information to facilitate interventions.

Federal and State Departments of Water Safety shall promote NSDWQ, and inform consumers on the health risk linked to poor water quality consumption.

4.3 Roles of Federal/State Ministry of Environment

Federal Ministry of Environment / National Environmental Standards and Regulations Enforcement Agency (NESREA) (in consultation with relevant institutions) shall:

- be responsible for the development of procedures for the establishment of protection zone around water sources intended for human consumption.
- inform, Federal Ministry of Water Resources, States Ministry of Water Resources and Drinking Water Service Providers in case of contaminations occurring in the protection zones.
- Protect, restore, and preserve watershed
- in collaboration with State Water Agencies implement protection zone and its control activities.

National Environmental Standards and Regulations Enforcement Agency (NESREA) shall:

- (i) Regulate activities around the protection zone;
- (ii) Enforce compliance with the requirements of protection zone

4.4 Roles of Standard Organisation of Nigeria (SON)

Standard Organisation of Nigeria shall:

- establish standards for quality of materials, equipment and treatment chemicals used for drinking water supply.
- enforce laboratory quality assurance and conduct system certification.
- Assess conformity to standards

4.5 Roles of National Water Resources Institute

National Water Resources Institute shall conduct training and re-training of drinking water utilities personnel on development and implementation of Water Safety Plan as well as water treatment processes that will ensure safe water delivery. It shall also certify operators in water treatment plant.

4.6 Roles of State Water Agencies

State Water Agencies, other water service providers and bodies listed in clause 1.6 shall comply with Nigerian Standard for Drinking Water Quality. These “bodies” shall:

- Request an authorization from *Federal Ministry of Water Resources* for the use of water for human consumption or for food processing. The authorization shall be issued when the following requirements are met:
 - Water quality comply with allowable limits
 - Construction requirements and water treatments are met
 - Minimum of 30m for borehole and 10m for well safe distance is observed around water points.

Operate and maintain water facilities in order to provide drinking water complying with the requirements of the Standard. An internal routine water quality control shall be conducted and water providers shall be equipped with minimum laboratory facilities to carry out routine water quality control. Results of internal routine water quality control shall be made available to Ministry of Water Resources and to Drinking Water Quality Surveillance inspectors.

- Establish and implement a Water Safety Plan that includes all measures undertaken to achieve NSDWQ
- Facilitate the access of all water facilities to Drinking Water Quality Surveillance inspectors.
- Inform Public Health State Authorities in case of failure of water treatment process.
- Provide regular update on water facilities characteristics and status to Ministry of Water Resources and Ministry of Health.

4.7 Roles of National Agency for Food and Drug Administration and Control (NAFDAC)

National Agency for Food and Drug administration and Control (NAFDAC) shall:

- enforce packaged water quality standards
- regulate the use of water treatment chemicals

4.8 Roles of Consumer Protection Council (CPC)

Consumer Protection Council (CPC) shall:

- receive complaints and or observed lapses and use appropriate Institutional Framework to ensure adequate correction.

- seek redress and compensation for aggrieved consumer or community as provided in the CPC Act No 66 (1992)
- undertake awareness campaigns to enlighten consumers on their rights to safe and wholesome drinking water as generally provided for in the CPC Act. No 66 (1992)

5. Requirements

5.1 Drinking Water Quality

In preparing the following table of parameters and maximum permitted limits, care has been taken to ensure that flexibility is carefully managed and balanced taking into consideration water system economic viability without unduly compromising the health of the consumers.

The substances in Nigerian Standard for Drinking Water Quality are simply divided into physical / organoleptic, chemical organic and inorganic constituents, disinfectants and disinfectants by-products, radionuclides and microbiological parameters.

All drinking water shall at any time meet the minimum requirements set out in Tables 1-7

All water supplies intended for human consumption shall comply with Nigerian Standards for Drinking Water Quality (NSDWQ) and shall receive authorization from Federal Ministry of Water Resources through the National Reference Water Quality Laboratories and other 17025 accredited laboratories before being supplied to the populace.

5.2 Parameters and Maximum Allowable Limits

5.2.1 Physical/Organoleptic Parameters

Drinking water shall meet the requirements of the physical/organoleptic parameters specified in Table 1.

Table 1 - Physical/Organoleptic Parameters

Parameter	Unit	Maximum Permitted Levels	Health Impact	Note
Colour	TCU	15	None	
Odour	-	Unobjectionable	None	
Taste	-	Unobjectionable	None	
Temperature	°Celsius	Ambient	None	
Turbidity	NTU	5	None	Note 1

Note 1: *Turbidity has no direct health impact but can harbour microorganisms protecting them from disinfection and can entrap heavy metals and biocides. This can bring problem in water treatment process and can also be a potential risk of pathogen in treated water.*

5.2.2 Chemical Parameters

5.2.2.1 Inorganic Constituents

Drinking water shall meet the requirements of the inorganic constituents specified in Table 2.

Table 2 - Inorganic Constituents

Parameter	Unit	Maximum Permitted	Health Impact	Note
Aluminum (Al)	mg/L	0.2	Potential Neuro-degenerative disorders	Note 2
Arsenic (As)	mg/L	0.01	Cancerr	
Barium	mg/L	0.7	Hypertension	
Cadmium (Cd)	mg/L	0.003	Toxic to the kidney	
Chloride (Cl)	mg/L	250	None	
Chromium (Cr ⁶⁺)	mg/L	0.05	Cancer	
Conductivity	µS/cm	1000	None	
Copper (Cu ⁺²)	mg/L	1	Gastrointestinal disorder,	
Cyanide (CN ⁻)	mg/L	0.01	Very toxic to the thyroid and the nervous system	
Fluoride (F ⁻)	mg/L	1.5	Fluorosis, Skeletal tissue (bones and teeth) morbidity	
Hardness (as CaCO ₃)	mg/L	150	None	
Hydrogen Sulphide (H ₂ S)	mg/L	0.05	None	
Iron (Fe ⁺²)	mg/L	0.3	None	
Lead (Pb)	mg/L	0.01	Cancer, interference with Vitamin D metabolism, affect mental development in infants, toxic to the central and peripheral nervous systems	
Magnesium (Mg ⁺²)	mg/L	20	Consumer acceptability	
Manganese (Mn ⁺²)	mg/L	0.2	Neurological disorder	
Mercury (Hg)	mg/L	0.001	Affects the kidney and central nervous system	
Nickel (Ni)	mg/L	0.02	Possible carcinogenic	
Nitrate (NO ₃)	mg/L	50	Cyanosis, and asphyxia ("blue-baby syndrome") in infants under 3 months syndrome") in infants under 3 months	
Nitrite (NO ₂)	mg/L	0.2	Cyanosis, and asphyxia ("blue-baby syndrome") in infants under 3 months	
pH	-	6.5-8.5	None	
Sodium (Na)	mg/L	200	None	
Sulphate (SO ₄)	mg/L	100	None	
Total Dissolved Solids	mg/L	500	None	
Zinc (Zn)	mg/L	3	None	

Note 2: Parameter to be monitored only if aluminum chemicals are used for water treatment.

5.2.2.2 Chemical Parameters

Drinking water shall meet the requirements of the organic constituents specified in Table 3.

Table 3 - Organic Constituents

Parameter	Unit	Maximum Permitted Levels	Health Impact	Note
Detergents	mg/L	0.01	Possibly carcinogenic	
Mineral oil	mg/L	0.003	Possibly carcinogenic	
Pesticides	mg/L	0.01	Possibly carcinogenic	
Phenols	mg/L	0.001	Possibly carcinogenic	
Poly Aromatic Hydrocarbons	mg/L	0.007	Possibly carcinogenic	
Total Organic Carbon or Oxidisability	mg/L	5	Carcinogenic	

5.2.2.3 Disinfectants and their By-products

Drinking water shall meet the requirements for the Disinfectants and their by-products specified in Table 4.

Table 4 - Disinfectants and their by-products

Parameter	Unit	Maximum Permitted Levels	Health Impact	Note
Free residual chlorine	mg/L	0.2 - 0.25	None	Note 3
Trihalomethanes (Total)	mg/L	0.001	Carcinogenic	Note 3
2,4,6-trichlorophenol	mg/L	0.02	Carcinogenic	Note 3

Note 3: For chlorinated water only

Water agencies are mandated to have booster stations for chlorination to maintain the required level of residual chlorine

Drinking water providers shall increase the amount of residual chlorine during epidemics or special cases according to instructions of Federal Ministry of Water Resources.

5.2.2.4 Radioactive Constituents

The presence of the following contaminants shall not exceed limits specified in Table 5.

Table 5 - Radioactive Limits

Parameter	Unit	Maximum Permitted Levels	Health Impact	Note
Radionuclides	Bq/L	0.1	Carcinogenic	

5.2.3 Microbiological Requirements

The maximum permissible microbiological limit shall be as specified in Table 6.

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Table 6 – Maximum Permissible Microbiological Limits

Parameter	Unit	Maximum Permitted Levels	Health Impact	Note
Total Coliform count	cfu/mL	10	Indication of faecal contamination	
Thermo tolerant Coliform or <i>E.coli</i>	cfu/100mL	0	Urinary tract infections, bacteraemia, meningitis, diarrhea, (one of the main cause of morbidity and mortality among children), acute renal failure and haemolytic anaemia	
Protozoa-giardia <i>Cryptosporidium oocyst</i>		3 log reduction and/ or inactivation	Commonly associated with gastrointestinal upset (nausea, vomiting, diarrhea); less common health effects can include respiratory symptoms central nervous system infections, liver infections and muscular syndromes.	Note 4
Faecal streptococcus/enterococcus	cfu/100mL	0	Indication of recent faecal contamination	
<i>Clostridium perfringens</i> spore	cfu/100mL	0	Index of intermittent faecal contamination	

Note 4: *The use of a multi-barrier approach that includes source water protection, adequate treatment, including disinfection and a well maintained distribution system can reduce microorganisms to levels that have not been associated with illness*

5.3 Minimum Parameters for Monitoring

The following set of simple parameters as stated in Table 7 are indicative of quality of drinking water shall be controlled on regular basis:

Table 7 - Routine Monitoring Parameters

Parameter	Notes
Taste	
Odour	
Colour	
Turbidity	
pH	
Conductivity	
Iron	
Nitrates	
Aluminum	Note 2
Residual chlorine	Note 3
<i>E. coli</i>	Note 4
Fluoride	Note 4
Nitrite – NO ₂	

Note 2: *Parameters subject to monitoring water treated using aluminum compound*

Note 3: *Parameters subject to monitoring water treated using chlorine compound*

Note 4: *95% compliance over a one-year period*

5.4 Laboratory Quality Assurance

Laboratories contracted by the Drinking Water Quality Surveillance agency to conduct water testing shall comply with NIS ISO 17025: 2005

Note: *Laboratories that have not been certified to NIS ISO 17025 shall submit themselves to International Performance Evaluation of Laboratories in order to ensure quality assurance/control and keep them to International Standard level of Laboratory Operations*

6. Data Management (information, Record Keeping and Reporting)

6.1 State water agencies shall compile and forward annual water quality reports to the State Ministry on drinking water quality then from there to the Federal Ministry of Water Resources.

- 6.2 All drinking water quality test and sanitary inspections results conducted by the National Reference Water Quality Laboratories shall be processed and forwarded to the Federal Ministry of Water Resources data bank
- 6.3 All water quality data shall be forwarded by the Federal Ministry of Water Resources to the Federal Ministry of Health and the National Bureau of Statistics.
- 6.4 The Drinking water quality surveillance body shall provide quarterly status report to the different stakeholders at a forum.
- 6.4.1 Annual Water Quality Report (see Annex 3) shall be presented to the National Council on Water Resources National Council on Environment and National Council on Health.
- 6.5 Water Quality Data shall be accessible to the general public.

7. Cost of Drinking Water Quality Surveillance

- 7.1 The owner of the system shall pay the cost of testing and approval.
- 7.2 The normal budgetary provisions of the State and Federal Ministries of Water Resources and Health shall cover the cost of routine drinking water quality monitoring and research.

8. Criteria for Compliance and Enforcement

- 8.1 The Federal Ministry of Water Resources shall:
- (i) enforce Nigerian Standard for Drinking Water Quality
 - (ii) [identify all water producers/ providers both public and private
 - (iii) carry out inspection visits, check machineries, Sanitary Inspection and water quality analysis of the water produced.
- 8.2 On compliance, the Federal Ministry of Water Resources shall issue a compliance certificate annually to Water Services Providers.
- 8.2.1 The Director of Water Quality Control and Sanitation shall issue the Compliance Certificate.
- 8.3 In case of non-compliance, the Federal Ministry of Water Resources shall:
- (i) inform the water utility not more than 7 days after the date the sample was collected and analysed, 3 days in case of disease outbreak.
 - (ii) recommend remedial measures and set deadline for the implementation of the measures.

- (iii) Issue Non-conformity Report (three times) before applying sanction.
 - (iv) The Director of Water Quality Control and Sanitation shall issue the Non-conformity Report (see Annex 1)
- 8.4** The quality of all drinking water produced in Nigeria shall comply with provision of this standard; any offence shall be liable on conviction to both fine and imprisonment as stipulated in Standards Organisation of Nigeria (SON) Act-Retained as Cap 412.
- 8.5** After three consistent issuance of Non-conformity reports the water facilities shall be sanctioned until corrective measures are put in place, following administrative procedure.
- 8.6** Furtherance to 8.5, and in the event that the facility was closed, a fine of Two Million Naira (N2, 000, 000.00) shall be paid for its re-opening.

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Annex 1

The Non-conformity Report



GOVERNMENT OF THE FEDERATION OF NIGERIA

WATER QUALITY NON-CONFORMITY REPORT

Ref No:

NON-COMPLIANCE WITH THE NIGERIAN STANDARD FOR DRINKING WATER QUALITY - NIS 554: 2015

The Federal Ministry of Water Resources in carrying out its mandate in national water resources management and in furtherance to the enforcement of the Nigerian Standard for Drinking Water Quality NIS 554: 2015 as revised have conducted water quality control and analysis of the water produced and supplied to the public by, located at (address), operated and managed byon(date):

- 2 From the Report of the laboratory analyses consisting of physical, chemical and microbiological parameters, it was found that the water treated and supplied to the public failed to meet the requirements of the Standard in the following areas:
- (i).
 - (ii).
 - (iii).

(Water Quality Summary Analysis Sheet attached)

- 3 Under the enforcement of the Nigerian Standard for Drinking Water Quality thereof you are enjoined to, within 90days (ninety days) from the date of receipt of the Non-conformity Report to upgrade your treatment process to meet the requirements of the Standard, failing which appropriate sanctions shall be applied in line with the Drinking Water Standard.

Given my hand thisday...
.....ofmonth.....year
Abuja, Nigeria.

Signature:.....
Name:.....
Position: Director, Water Quality
Control and Sanitation
Official Stamp:

Annex 2

Normative References/Laws

- [1] Water Resources Act No 101 (1993)
- [2] Standards Organisation of Nigeria (SON) Act- Retained as Cap 412
- [3] Public Health Act (1958)
- [4] National Environmental Standards Regulations Enforcement Agency (Establishment) Act 2007
- [5] Environmental Health Officers (Registration etc) Act 11 (2002)
- [6] Food and Drugs (1999-No.19) Changed to NAFDAC Act 11
- [7] Food and Drug- Retained as Cap 150
- [8] National Electric Power Authority Act-Currently retained as Cap 256
- [9] National Electric Power Authority (Amendment) Act
- [10] Land Use Act- Retained as Cap 202
- [11] Land Use Act (Validation of Certain Edits) - Retained as Cap 203
- [12] National Water Resources Institute Act- Retained as Cap 284
- [13] River Basin Development Authorities Act- Retained as Cap 396
- [14] Navigable Waterways (Declaration) Act- Retained as Cap 287
- [15] Factory Act (1959)
- [16] Council of Mining Engineers and Geoscientist Act No 40 (1990)
- [17] National Inland Waterways Authority
- [18] State Water Supply Edicts/Laws
- [19] Local Government Water and Sanitation Bye laws
- [20] National Water Supply and Sanitation Policy. Federal Ministry of Water Resources (2000)
- [21] National Guidelines and Standards for Water Quality in Nigeria
- [22] Institute of Public Analyst of Nigeria Act No 100 (1992)
- [23] Institute of Chartered Chemist of Nigeria Act No 91 (1993)
- [24] Council for Regulation of Engineering in Nigeria Act 55 (1972)
- [25] Council of Regulation of Engineering in Nigeria Act (Amendment) No 27 (1992)
- [26] Consumer Protection Council Act 66 (1992)

Annex 3- Water Quality Summary Analysis Report Sheet

FEDERAL MINISTRY OF WATER RESOURCES
DEPARTMENT OF WATER QUALITY CONTROL AND SANITATION

WATER QUALITY REPORT (SUMMARY ANALYSES).															
PUBLIC WATER SUPPLY				SAMPLING DATE: DD/MM/YYYY				SAMPLING PERIOD: QUARTER /YYYY							
State	Town	Agency Responsible	Water Source	Number of Communities	Population served	% of population with access	Quantity Treated/ Supplied (M ³)	Design Capacity of Plant(M ³)	Result of Water Quality Analyses (Physical, Chemical & Microbiological Parameters)						Remarks
									Critical Parameters (Unit)	Raw water at In-take	Treated Water at the Plant/Works	Treated Water at Yard / Household	Reference NSDWQ (Max. Permitted levels)	Compliance with the Standard	
Reference Water Quality Laboratory: Sample Analysts: Name: Designation: Date: Chemist: Microbiologist: Laboratory Manager:															

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* To accompany the Water Quality Non-conformity Report.

NOTES:

- BDL Below Detection Limit of the method or equipment used for the analysis.
- NSDWQ Nigerian Standard for Drinking Water Quality

Bibliography

- [1] International Organization for Standardization (ISO) – Service activities relating to drinking water and wastewater – Guidelines for the management of drinking water utilities and for the assessment of drinking water services
- [2] World Health Organization – Guideline for Drinking Water Quality, 3rd Edition, 2004

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