

**Petroleum Pipeline Regulations
Under Section 136 and 191
Petroleum Industry Act (2021).**

Draft: June 30, 2022

Objective

1. The objective of these regulations is to regulate the licencing and operations of Pipelines for natural gas and petroleum liquids (the "Pipeline") by the Authority pursuant to sections 135 and 190 of the Petroleum Industry Act (the "Act") Notwithstanding the provisions of these regulations, the provisions of the Oil Pipelines Act and any subsidiary legislation made under it shall pursuant to Sec 311(9)(c) and Sec 310 of the Act continue to be in force mutatis mutandis until revoked or repealed.

2. The Authority may from time to time publish Guidelines under these Regulations.

Licence to Establish

3. (1) An application for a licence to establish a pipeline shall be:

- (a) in a form prescribed and upon terms and conditions set out in Guidelines.
- (b) in accordance with the provisions of section 111(2&4) of the Act; and
- (c) accompanied with an application for permit to survey the pipeline route and a pipeline conceptual plan.

(2) The pipeline conceptual plan shall be prepared in the format prescribed by the Authority and shall include a statement indicating –

- (i) the services to be rendered by the pipeline;
- (ii) the preliminary specifications of the pipeline;
- (iii) the characteristic of the substances to be conveyed through the pipeline;

- (iv) Financial plan and business case for the development of the pipeline;
 - (v) Community development programs; and
 - (vi) Local content input for the project
- (3) The application for the permit to survey shall be in accordance with Regulation 4 of these Regulations.
- (4) The licence to establish shall not be granted prior to the issuance of permit to survey by the Authority.
- (5) A licence under this paragraph may relate to any of the licenced activities by the Authority provided for under section 125(1c&3) and 174(1(c, f &3) of the Act.

Permit to Survey Pipeline Route

4. (1) The Authority shall not grant Pipeline Licence or renew such licence unless the route of the pipeline has been surveyed; or in the case of a renewal, the pipeline route has been re-surveyed.

(2) No survey or re-survey shall be carried out under regulation 4(1) unless a permit to survey has been issued by the Authority pursuant to these Regulations.

(3) Any person may make an application to the Authority for the grant of a permit to survey the route of a natural gas transportation pipeline, petroleum liquids transportation pipeline or other petroleum derivatives. Such application shall specify the approximate route or alternative routes.

(4) An application for a permit to survey shall be accompanied with a survey programme, including –

- (a) time, duration and place of the surveys;
- (b) survey methods;
- (c) topographical map of the proposed route of the pipeline drawn on scale –
 - (i) 1:50,000, for a pipeline that is not more than 50 kilometres long;

- (ii) 1:100,000, for a pipeline that is over 50 kilometres but not more than 100 kilometres long; and
 - (iii) 1:250,000, for a pipeline that is over 100 kilometres long.
- (d) where the survey is for an offshore pipeline, the following information should also be provided –
 - (i) vessels to be used; and
 - (ii) fishery expert to be used by the applicant during the survey for consideration of the fishery activity in the area.
- (e) Evidence of payment of applicable fees as prescribed in these regulations.

(5) A permit to survey granted pursuant to these Regulations shall be valid for two (2) years and subject to the terms and conditions stipulated by the Authority and the provisions of section 115(1) of the Act.

5. (1) The Authority shall, within ninety (90) days after the application for licence to establish has been submitted by the applicant, notify the applicant in writing of its decision.

(2) Where the Authority requires the input of a third party to make decision on an application for permit to survey, the consent of the third party shall be deemed obtained upon the expiration of time given by the Authority to respond.

(3) Where the Authority declines an application for licence to establish, it shall state the reasons thereof.

(4) Where the Authority does not respond within the ninety (90) days, the application shall be deemed approved.

6. (1) The holder of the licence to establish shall provide to the Authority the regular activity reports and information obtained during the survey activities.

(2) Upon completion of the survey, the licence holder shall provide to the Authority the completion report containing the results and assessment of the survey.

(3) Such activity, and completion reports and information shall be submitted during the application for pipeline licence and in the format prescribed by the Authority.

Application for Licence to Construct

7. Application for a licence to construct shall be made during the validity of a Licence to Establish upon terms and conditions set out by the Authority in Guidelines accompanied by a pipeline development plan; and application for pipeline licence

Design, construction, and inspection of pipelines

Pipeline design

8. (1) The design of any pipeline for the purposes of these Regulations shall be –

- (a) suitable for the transportation of natural gas, liquid petroleum, including crude oil, refined products, natural gas liquid condensate and liquified petroleum gas;
- (b) in accordance with best international petroleum industry practices; and
- (c) as set out in these Regulations.

(2) The design for the relocation, replacement and upgrading of an existing pipeline shall also conform with the provisions of regulation 8(1).

Standard of design

Oil pipelines

9. (1) The standard of design for oil pipeline shall be as follows, that is –

- (a) it shall conform with –
 - (i) the ASTM A106 Grade B or API 5L Grade B or ASME B31.4 or any acceptable equivalent standard, as the minimum requirement for a low-pressure range or small diameter pipeline; and
 - (ii) any of the API 5 LX grade range, for a high working pressure or large diameter pipeline, where a lower grade would require excessively thick walls to cope with the desired working pressure.

- (b) the pipeline shall be seamless and be Electric Resistance Welded (ERW) or Double Submerge Arc Welded (DSAW);
- (c) the design shall be in accordance with the latest ANSI/ASME B31.4 standard titled "Pipeline Transportation Systems for Liquids and Slurries";
- (d) relevant provisions of the ANSI/ASME B31.4 standard shall be used for offshore pipelines.

(2) In addition to the pipeline being in conformity with the latest ANSI/ASME B31.4 standard, special attention shall be paid to the following matters, that is –

- (a) where a pipeline is to be laid at sea or river-bed without burial, the wave and current loads on the pipeline shall be taken into account in the stress calculation of the pipeline;
- (b) where applicable, the calculation of limit stress due to sustained load, thermal expansion and occasional loads shall conform strictly with latest editions of paragraphs 402.3.2. and 402.3.3. of the ANSI/ASME B 31.4 standard;
- (c) the design and materials selection of the pipeline components, including tees, elbows, bends, valves and fittings shall in all respects conform with latest edition of Parts II and III of Chapter II of the ANSI/ASME B 31.4 standard;
- (d) no used fitting of an existing pipeline shall be used on a new pipeline unless its original specification has been identified and confirmed to be capable of performing the new service;
- (e) the threaded joints at the internal and external portions of the pipe shall be of the Tapered Pipe Thread type and conform with the API standard 5B or NPT threads in accordance with ANSI B2-1;
- (f) the least nominal wall thickness of the threaded portion of the pipe shall not be less than the value specified in ANSI B2-1;
- (g) all threaded joints of the pipe shall be of those sections of the pipeline that are above the ground;
- (h) if two or more pipelines are to be so connected that one will operate at a pressure higher by more than 5 per cent than the lowest licensed maximum operating pressure of the other pipeline, they shall be so

designed that the pipeline system operating at the lower pressure shall not be subjected to any pressure greater than that for which it is licensed and shall be equipped with a pressure control system and overpressure protection;

- (i) any pipe fitting valve or equipment connected to the pipeline shall have the manufacturer's rating which is equal to or greater than the proposed maximum operating pressure of the pipeline.

Gas pipelines

10. The requirements for the design, fabrication, installation, inspection, testing, operation, and maintenance of a gas pipeline required to operate with metal temperature of between 450 degrees Fahrenheit and minus 20 degrees Fahrenheit shall be as follows, that is –

- (a) the standard of design shall be in accordance with the specifications of the latest ANSI/ASME B31.8 standard titled "Gas Transmission and Distribution Piping Systems" or any acceptable equivalent standard;
- (b) relevant provisions of the ANSI/ASME B31.8 standard shall be used for offshore pipelines;
- (c) all structural materials, valves, fittings, bolting and tubing to be used shall generally conform with the specification in Appendix B of the reference standard ASME B31.8, ASME B16.5;
- (d) the gas pipeline shall be generally seamless or of the ERW (Electric Resistance Welded) and DSAW (Double Submerged Arc Welded) types;
- (e) the use of thermoplastic and thermosetting pipe materials may be acceptable if they conform with the ASTM specifications D2513 and D2517 respectively and are inhibited against material degradation effects by ultra-violet rays if used in locations where the pipeline is exposed to sunlight;
- (f) the weldability of the ferrous pipe materials shall be tested in accordance with the requirements of API standard 1104;

- (g) adequate provisions shall be made for –
 - (i) the flexibility of the pipeline while under pressure in the form of anchorage and guide points; and
 - (ii) temperature-induced stresses by allowing for expansion joint couplings.

Construction of pipeline

Oil pipelines

11. (1) The requirements and the other matters that shall be considered in the construction of a new pipeline or in the replacement of an existing pipeline shall be as follows:

- (a) a licensee granted a licence to construct a new pipeline or replace an existing pipeline shall not begin any construction work unless such licensee has given the Authority written notice of his intention to do so, in the format prescribed by the Authority;
- (b) any metallic pipeline material to be buried shall be coated with –
 - (i) coal-tar enamel, asphalt enamel, polyethylene tape, epoxy, asphalt mastic, urethane, or extruded polyethylene; or
 - (ii) any other material specially approved by the Authority for that purpose;
- (c) a surface pipeline shall be painted, raised and maintained above ground on permanent supports;
- (d) the pipeline construction shall –
 - (i) follow the steps outlined in Chapter V of the latest ANSI/ASME B 31.4 standard; and
 - (ii) be carried out in a way that shall cause the least disturbance to the environment;
- (e) special precautions shall be taken to protect the pipeline from wash-outs, unstable soil, landslide or any other hazards that may cause the pipeline to shift or be subjected to abnormal loads;

- (f) ditching for the pipeline shall be in accordance with best international petroleum industry practices;
- (g) consideration for public safety shall be in accordance with the provision of API RP 11002 or any other recognised equivalent standards;
- (h) the minimum soil coverage of a pipeline on land shall be –
 - (i) in the case of dry land, 0.9 metre;
 - (ii) in the case of a river crossing and river-beds, 1 metre;
 - (iii) in the case of drainage ditch, railroad and highway crossing, 1.2 metres;
 - (iv) in the case of a rocky area, 0.6 metre;
 - (v) in the case of a swamp, 0.6 metre; and
 - (vi) in the case of a shipping channel, 1.5 metres;
- (i) Any pipeline installed in shallow water, or in waters not more than 60 metres deep, as measured from the mean low tide, must be buried. The pipeline shall be installed in such a way that the cover between the top of the pipeline and the underwater natural bottom (as determined by recognized and generally accepted practices), complies with the following minimum requirements –
 - (i) in the case of navigable river, harbour, deepwater port safety zone, 1.2 metres for normal soil or 0.6 metre for consolidated rock; and
 - (ii) for all other cases, 0.9 metres for normal soil or 0.5 metres for consolidated rock.
 - (iii) A licensee may employ engineered alternatives for burial that meet or exceed the level of protection provided by burial, with the approval of the Authority.
 - (iv) A trawl test or diver survey may be required to determine whether or not pipeline burial is necessary or to determine whether a pipeline has been properly buried.

- (j) the pipeline welding shall be in accordance with the provisions of API 1104 and API 1107 and welding inspection shall be by non-destructive method using the radiographic method set out in API 1104;
- (k) in addition to the specific requirements of the relevant government agency responsible for railroad and highway crossings, the following precautions shall be taken at railroad and highway crossings, that is-
 - (i) any installation of carrier pipe or casing shall be in accordance with API RP 1102;
 - (ii) the casing shall either be insulated from its carrier pipe support and extend to both sides of the railroad or highway or the crossing shall be of a thicker wall pipeline covered with compacted fill and protective reinforced concrete slab;
 - (iii) a surface line shall be similarly buried with casing protection or special construction as specified in subparagraph (k) (ii) of this paragraph at such crossings;
 - (iv) a pipeline warning sign shall be conspicuously displayed by the licensee at the entry and exit points of the railroad, highway, river or any other pipeline crossing.
- (l) the licensee shall, before commencing any ground disturbance in a populated or controlled area –
 - (i) locate the position and alignment of the pipeline with marking and distinguishable warning signs at such intervals as may be specified by the Authority;
 - (ii) identify any pipeline within thirty metres radius of its area of ground distance during the construction of the pipeline.
- (m) if there is an indication that a pipeline is within thirty metres radius of the pipeline or a pipeline crossing, the licensee or any other person undertaking construction within that radius shall locate the pipeline and mark it so that it can be identified and avoided by the construction equipment and no person shall excavate within one metre radius of the pipeline so located;

- (n) the Authority may direct that an existing pipeline or pipeline crossing located within the construction zone of the new pipeline in a populated or controlled area shall, during the period of ground disturbance in its vicinity, be –
 - (i) completely depressurized; or
 - (ii) operated at reduced pressure; or
 - (iii) otherwise protected.
- (o) mainline block valves shall be installed –
 - (i) on the upstream side of major river crossings;
 - (ii) at pump stations; and
 - (iii) at other sensitive locations of the pipeline, including industrial, commercial and densely populated areas where construction activities may pose particular risks of damage to the pipeline, the right of way of the pipeline shall be clearly marked in those areas with signs for ease of identification;
- (p) check valves shall be installed on the downstream of river crossings;
- (q) the licensee shall, not later than six months after completion of construction, submit two copies of the as-built plan of the pipeline on the same scale as that of the plan submitted with the application for the pipeline licence.

Gas pipelines

12. The requirements and the other matters that shall be considered for the construction of a new gas pipeline or for the replacement of an existing gas pipeline shall be as follows:

- (a) the design and construction of a pipeline and its corresponding corrosion control installation shall be in accordance with the standards and codes specified in ANSI/ASME B 31.8, and in the latest edition of the NACE Standard SP 0169 or any other equivalent standard;

- (b) a long-distance gas transmission pipeline shall be made of steel and its design and construction shall be based on the location classes specified in ANSI/ASME B31.8;
- (c) where a type of construction is specified for a pipeline in the proximity of main roads and railroads and their mode of crossings, the pipeline shall be constructed to those specifications;
- (d) the minimum depth of burial of the pipeline shall be as specified in regulation 13(h) and 13(i) of these Regulations but where –
 - (i) the minimum depth cannot be achieved; or
 - (ii) the pipeline would be exposed to excessive external loads, the pipeline, at those points, shall be encased, bridged or specially reinforced to withstand any anticipated external loads.
- (e) there shall be a minimum clearance of 0.5 metre between the pipeline and any other underground structure not connected with it;
- (f) a buried pipeline shall be protected against corrosion and if a pipeline is to transport corrosive or toxic gas –
 - (i) the design parameter of the pipeline shall be such that the gas pressure in the pipeline at any time shall not result in a hoop stress greater than sixty (60) per cent of the specified minimum yield strength of the pipeline material based on its nominal wall thickness; and
 - (ii) the block valves and check valves for the pipeline shall be so located as to prevent the escape of the corrosive or toxic gas into the atmosphere in the event of a pipeline failure;
- (g) the inspection of the pipeline construction materials and its appurtenances, welding, ditching, stringing and the general installation shall be in accordance with the procedure outline set out in Chapter IV of ANSI/ASME B31.8;

13. Cast-iron materials shall not be used for a gas pipeline unless –

- (a) specific application, supported with compelling reasons for using the cast-iron material, has been made to the Authority;

- (b) the Authority has given special approval for the material to be used;
- (c) the design is strictly in accordance with the specifications set out in paragraph 842 of the reference standard ANSI/ASME B31.8.

14. (1) Thermoplastic and thermosetting plastic material of the grades specified in ASTM-D2513 and ASTM-D1217 may be used for laying gas service lines only.

(2) The requirements for the use of plastic materials for gas lines are as follows, that is –

- (a) where the value of the plastic design factor is not less than 0.32 for any case, the design pressure for the plastic gas pipeline shall be in accordance with the formula given in paragraph 842.31 of ANSI/ASME B31.8;
- (b) the plastic materials shall be used in any service where the maximum and minimum operating temperatures are higher than 1000 degrees Fahrenheit or lower than minus 200 degrees Fahrenheit respectively;
- (c) the plastic materials used shall be inhibited against the effect of ultra-violet rays which renders such materials brittle when exposed to sunlight;
- (d) the plastic pipes or tubing shall not be threaded at joints but shall be jointed by the solvent cement method, adhesive method, heat-fusion or by means of compression coupling or flanging, whichever conforms with the manufacturer's specifications;
- (e) extreme caution shall be taken in laying plastic pipelines to avoid damage to the material, consequently;
- (f) a buried plastic pipeline of –
 - (i) 1/2 inch nominal diameter and above, shall have a minimum wall thickness 0.1 inch; and
 - (ii) below 1/2 inch nominal diameter, shall have a minimum wall thickness of not less than 0.06 inch.
- (g) a plastic pipeline shall –
 - (i) be buried in undisturbed or well compacted soil and no mitre bend shall be permitted at any portion of the pipeline;

- (ii) be tested at a pressure of not less than 150 per cent of its maximum operating pressure or 50 psig, whichever is greater;
- (iii) not be subjected on any occasion to a pressure of more than 300 per cent of its maximum operating pressure.

15. (1) A licensee shall ensure that a pipeline conveying gas containing more than 1 mole of hydrogen sulphide gas per kilomole of natural gas, or any lesser hydrogen sulphide content that the Authority may stipulate in a particular case, is equipped with automatically actuated emergency shutdown devices or check valves.

(2) A licensee shall conduct an engineering assessment to define the pipeline operating conditions and the closure parameters of the automatically actuated emergency shutdown devices referred to in regulation 15(1) that will ensure the release volume used in calculating the emergency planning zone in the event of a pipeline break is as low as reasonably practicable.

(3) A licensee shall ensure that the automatically actuated emergency shutdown devices or check valves referred to in regulations (1) and (2) –

- (a) isolate the pipeline into segments whose volumes are in accordance with those specified in the licence application; and
- (b) automatically close as defined by the engineering assessment required in regulation 15(2) if a pipeline break occurs.

(4) A licensee shall ensure that the automatically actuated emergency shutdown device referred to in regulation 15(1) –

- (a) closes on the failure of any control or operating component;
- (b) remains closed once the device has closed due to actuation or failure; and
- (c) requires on-site human intervention to reopen once it has closed unless it was closed due to a planned pipeline shutdown.

(5) A licensee shall not allow the pipeline or the automatically actuated emergency shutdown devices to operate outside of the conditions defined within the engineering assessment conducted under regulation 15(2).

(6) If the licensee determines that the pipeline or the automatically actuated emergency shutdown devices could be operated outside of the conditions defined by the engineering assessment conducted under regulation 15(2), the licensee shall shut in the pipeline until –

- (a) the pipeline and the automatically actuated emergency shutdown devices can be operated within the defined conditions; or
- (a) the licensee completes an engineering assessment as specified in regulation 15(2) and revises the emergency planning zone.

(7) Unless authorized by the Authority, a licensee shall maintain a record of the current engineering assessment conducted under regulation 15(2) and the actions taken under regulation 15(6) until the pipeline is decommissioned.

(8) The licensee shall submit a copy of the records required under regulation 15(7) to the Authority on request.

(9) If gas streams are blended for the purpose of maintaining a lower hydrogen sulphide content in the final blended stream, and any inlet stream conveys gas containing more than 1 moles of hydrogen sulphide gas per kilomole of natural gas, or any lesser hydrogen sulphide content that the Authority stipulates in a particular case, the licensee shall ensure that there are 2 independent safety systems to prevent a greater hydrogen sulphide content in the blended stream than permitted in the licence. A licensee shall ensure that one of the 2 independent safety systems provides, as a minimum, the process control to achieve the blend ratio and that the other system provides, as a minimum, monitoring, and automatic shutdown.

Inspection and testing of pipelines

Oil Pipeline

16. The licensee shall, on completion of the construction of the pipeline, give the Authority not less than fourteen (14) working days written notice of its intention to commence inspection and testing of the pipeline, in the format prescribed by the Authority.

17. (1) The requirements for the inspection and testing of a pipeline are as follows, that is –

- (a) the pipeline shall be inspected visually and examined radiographically in accordance with the procedure set out in the latest edition of ANSI/ASME B31.4 standard;
- (b) pressure tests shall be conducted by hydrostatic method and in such manner as shall ensure the protection of life, property and the general environment of the pipeline;
- (c) the entire length of the pipeline shall be tested to the designed rated pressure;
- (d) an in-line pressure vessel or a pre-fabricated manifold on the pipeline shall be tested to the manufacturer's specifications in accordance with applicable regulations;
- (e) the pressure recording instruments to be used for testing shall have a valid calibration certificate which shall not be more than one year old;
- (f) the accuracy of the pressure recording instrument shall be within 2 per cent of its range;
- (g) the chart record of the test shall be continuous and legible and the test result and any remedial action taken shall be submitted to the Authority for approval before the pipeline is commissioned;
- (h) except with the permission of the Authority, the duration of pressure tests shall not be less than 6 hours of continuous testing in the case of leaks and material failures, and
- (i) all pipelines shall be tested to a pressure of not less than 1.25 times the designed pressure;
- (k) the test medium shall be water;
- (l) the maximum test pressure in all cases shall not result in a hoop stress greater than 110 per cent of the specified maximum yield strength of the pipe material based on its nominal wall thickness; and
- (m) valves and fittings on the pipeline shall not, during the test, be subjected to a pressure greater than the manufacturer's test pressure rating.

Gas Pipeline

18. The licensee shall, on completion of the construction of the pipeline, give the Authority not less than fourteen (14) working days written notice of its intention to commence inspection and testing of the pipeline, in the format prescribed by the Authority.

19. (1) The requirements for the inspection and testing of a pipeline are as follows, that is –

- (a) the pipeline shall be inspected visually and examined radiographically in accordance with the procedure set out in the latest edition of ANSI/ASME B31.8 standard;
- (b) pressure tests shall be conducted by hydrostatic method and in such manner as shall ensure the protection of life, property and the general environment of the pipeline;
- (c) the entire length of the pipeline shall be tested to the designed rated pressure;
- (d) an in-line pressure vessel or a pre-fabricated manifold on the pipeline shall be tested to the manufacturer's specifications in accordance with applicable regulations;
- (e) the pressure recording instruments to be used for testing shall have a valid calibration certificate which shall not be more than one year old;
- (f) the accuracy of the pressure recording instrument shall be within 2 per cent of its range;
- (g) the chart record of the test shall be continuous and legible and the test result and any remedial action taken shall be submitted to the Authority for approval before the pipeline is commissioned;
- (h) the duration of pressure tests shall not be less than 6 hours of continuous testing in the case of leaks and material failures, and
- (i) all pipelines shall be tested to a pressure of not less than 1.5 times the maximum allowable operating pressure;
- (k) unless otherwise authorised or permitted by the Authority –

- (i) the actual test pressure throughout the duration of the test shall not exceed 110 per cent of the minimum yield strength of the pipe material and the test equipment shall appropriately be pre-set not to produce above that pressure;
 - (ii) the test medium shall be water;
 - (iii) the pipeline shall be tested to a minimum pressure of not less than 700 kilopascals.
- (l) the maximum test pressure in all cases shall not result in a hoop stress greater than 110 per cent of the specified maximum yield strength of the pipe material based on its nominal wall thickness; and
 - (m) valves and fittings on the pipeline shall not, during the test, be subjected to a pressure greater than the manufacturer's test pressure rating.

20. Application for Pipeline Licence

(1) The application for pipeline licence shall include a statement indicating –

- (i) the services to be rendered by the pipeline;
- (ii) the specification of the pipeline;

(2) The application for a renewal of the pipeline licence shall be made at least two (2) years prior to the termination of the initial term of the licence or the renewal term and shall be as prescribed in the Guidelines issued by the Authority.

(3) The applicant shall publish its application in such manner as the Authority may prescribe and shall notify those who own land in the proposed right of way.

- (b) a survey description, in accordance with the Nigerian National Grid, of the total route of the pipeline, indicating the width of the right of way, with the coordinates of the various points of intersection;
- (c) the proposed plan of the pipeline showing –
 - (i) the selected route of the pipeline marked in red and the sections and quarter sections. The topographical map of the selected route shall be drawn to scale as follows:

- a) 1:50,000, for a pipeline that is not more than 50 kilometres long;
 - b) 1:100,000, for a pipeline that is over 50 kilometres but not more than 100 kilometres long; and
 - c) 1:250,000, for a pipeline that is over 100 kilometres long.
- (iii) the direction of flow of fluid or natural gas along the pipeline;
 - (iv) the location, shown by symbols, of any installation along the pipeline;
 - (v) the location of the points at which the new pipeline would cross any other pipeline, stating the owner of the pipeline being crossed;
 - (vi) the relative position of any existing pipeline in the same right of way of the new pipeline;
 - (vii) any pipeline within a distance of 100 metres of the new pipeline, stating the owner of that pipeline;
 - (viii) the regional topography of the area along the pipeline route, within a distance of 100 metres on both sides, including any watercourse that the new pipeline would cross;
 - (ix) the location of any anchor or expansion loop.

21. Pipeline Development Plan

The pipeline development plan shall be prepared in the format prescribed by the Authority and shall include –

- (a) a statement indicating –
 - (i) the services to be rendered by the pipeline;
 - (ii) the specification of the pipeline;
 - (iii) the characteristic of the substances to be conveyed through the pipeline; and
 - (iv) the estimated costs of construction of the pipeline.

- (ii) the detailed engineering design including the location of each point at which there is a change in the outside or the nominal diameter of the pipeline, the wall thickness of the pipeline material, the type and grade of the pipeline and the designed maximum operating pressure;
 - (x) the location and operating details of corrosion prevention devices, main line valves and any emergency shut-down devices;
 - (xi) the pig launching and receiving points and any tie-in-points with operating details;
 - (xii) the manner in which the new pipeline would cross any highway, railroad, waterway or any other pipeline along the route.
- (d) estimated duration of pipeline design, development, construction and start-up of operations;
 - (e) a hydraulic profile of the pipeline indicating the position of any pumping or booster station;
 - (f) the ancillary facilities along the pipeline or at its terminal ends, including compressor stations, manifolds and metre banks, giving a general description of each facility and its proposed operation parameter;
 - (g) decommissioning plan prepared pursuant to decommissioning and abandonment regulations issued by the Authority;
 - (h) quantitative and qualitative risk assessments in the format prescribed by the Authority;
 - (i) the following matters shall be described and addressed in the pipeline development plan –
 - (i) location and type of facility the pipeline is connecting to and from;
 - (ii) locations of military zones, fisheries and other competing uses of the area;

- (iii) appropriateness of materials for construction of the pipeline given the corrosivity of substances to be conveyed (such as, natural gas, water, chlorides, hydrogen sulphide, carbon dioxide, and other related substances);
 - (iv) constructability of the proposal, including but not limited to, pipe material, size, wall thickness, composition of fluid and capacity, maximum operating pressure, maximum and minimum design temperatures, pipeline stability and corrosion protection;
 - (v) metocean and sea-bed conditions where applicable;
 - (vi) potential geohazards and manmade hazards for the pipeline and mitigation of their effects;
 - (vii) analysis of compliance with relevant regulatory requirements; and
 - (viii) future petroleum development and potential tie-ins in the vicinity of the proposed pipeline.
- (j) where the proposed pipeline is in excess of 20 kilometers in length, environmental management plan prepared pursuant to applicable regulations shall be submitted;
 - (k) a statement as to whether the pipeline is intended for own use of the licensee or as a common carrier;
 - (l) explanatory note analysing how the proposed pipeline complies with the requirements for design and construction prescribed by these Regulations;
 - (m) where the proposed pipeline is a natural gas pipeline, explanatory note indicating whether the existing Nigerian Gas Transportation Network Code is intended to apply to the pipeline or whether a separate network code is required; and
 - (n) the timing and plan for the request for approval of pipeline tariffs under the applicable regulations and Guidelines.

22. (1) The Authority shall pursuant to the Act, within ninety (90) days after the application for the licence has been submitted by the applicant, notify the applicant in writing of its decision.

(2) Where the process of reviewing and approving of application for licence requires the input of a third party outside the control of the Authority, the Authority shall notify the applicant of any delays occasioned by non-receipt of third party input and the 90 days provided for approval or refusal to issue licence shall be extended to such reasonable time as may be communicated by the Authority.

(3) If the Authority is not satisfied with the application, the Authority shall not approve the application and notify the applicant in writing of its decision and the reasons for the refusal. The Authority may give the applicant an opportunity to modify and resubmit the application.

(4) If, after the applicant has had an opportunity to modify and resubmit application under regulation 22(3), and the Authority is still not satisfied with the application, the Authority may refuse to approve the application and notify the applicant in writing.

(5) During the review of the application, the Authority shall consult with and seek consents from other agencies and conduct a hearing where stakeholders and owners of land in the rights of way may present opinions or objections.

(6) Where the Authority requires the input of a third party to make decision on an application for pipeline licence, the consent of the third party shall be deemed obtained upon the expiration of time given by the Authority to respond.

(7) Where the Authority decides to grant a licence for a pipeline, the licence shall be granted for a period of no more than twenty (20) years and where the Authority decides to renew a licence it shall be as prescribed in the Guidelines issued by the Authority.

(8) Any subsequent modification to the pipeline route or the pipeline characteristics must be pre-approved by the Authority.

Rights of way

23. (1) Pursuant to the provisions of section 127 and 176 of the Act, a licensee is entitled to rights of way for the construction, operation, and maintenance of a pipeline, which shall include any ancillary facilities.

(2) The pipeline licence shall give the licensee access to the rights of way for the construction, operation, and maintenance of the pipeline, subject to such environmental and other provisions which may apply under the licence.

(3) The licence shall include provisions related to adjustments of public works and obligations with respect to accommodation works.

24. Obligations in respect of accommodation works

(1) The holder of a licence shall make and maintain for the accommodation of the owners or occupiers of any land in respect of which the licence has been granted or of the owners or occupiers of adjoining land or for the accommodation of the users of any customary track or path such crossings, bridges, culverts, drains or passages as may be necessary for the purpose of making good any interruption to the use of such land or the amenities thereof or to the use of such customary track or path caused by the exercise of the powers granted in accordance with these Regulations:

Provided that it shall not be necessary to make good any interruption in respect of which compensation under these Regulations has been paid:

Provided further that upon accommodation works being provided in accordance with the provisions of this section no further accommodation works shall be necessary in respect of any change of use of any land or omission of any person not being the holder of the licence or his agent, workman or servant.

(2) The holder of a licence may for the purpose of exercising the powers conferred upon him alter the level or position of any pipe, conduit, watercourse, drain, or electric, telephone or telegraph wire or post, but shall give reasonable notice of his intention so to do to the person in control thereof and shall execute the work to the reasonable satisfaction of that person.

(3) Where there is a danger that a tree standing near an oil pipeline may fall and damage such pipeline or an ancillary installation the holder of the licence may after giving notice to an administrative officer having responsibility in the area fell the tree or otherwise deal with it, and in such event shall upon application by any person interested in the tree pay such compensation as such officer shall consider necessary.

Environmental protection Guidelines

25. The operator shall present to the Authority and demonstrate that adequate contingency plans have been made for protecting the environment where –

- (a) the test pressure results in a hoop stress greater than 75 per cent of the specified minimum yield strength of the pipeline based on its nominal wall thickness; or
- (b) the pipeline crosses or passes within 100 metres of a watercourse,

Operation and maintenance

Oil pipelines

26. The requirements for operation and maintenance of oil pipelines are as follows:

- (a) a licensee shall –
 - (i) not begin to operate a pipeline unless he has obtained the approval of the Authority;
 - (ii) establish a site-specific written emergency plan for implementation in the event of systems failure, accidents, or other emergencies.
- (b) an emergency plan established under regulation 26(a)(ii) shall include procedures for prompt and expedient remedial action for –
 - (i) the safety of the personnel of the operating company and of the public;
 - (ii) the protection of property and the environment;
 - (iii) the control of accidental discharge from the pipeline; and
 - (iv) the adequate training of personnel for the handling of emergencies.
- (c) the maximum steady state operating pressure and static condition shall not exceed –
 - (i) the internal design pressure; or

- (ii) the pressure ratings of the components, whichever is less, and the pressure surges or the momentary pressure variations shall not exceed 10 per cent.
- (d) pipeline markers at crossings shall indicate the location of the pipeline, the name and contact details of the licensee;
- (e) all pressure relief devices shall be –
 - (i) activated after installation to ensure that they function properly;
 - (ii) inspected and re-certified once in 12 months, and the report of the inspection and recertification shall be sent to the Authority.
- (f) the right of way shall be maintained to provide a clear visibility and give access to the maintenance crew;
- (g) clear access shall be maintained to valves locations, and ditches shall be protected against washout of the pipeline;
- (h) the right of way shall be regularly patrolled for prompt detection of any line break, encroachment or any other situation that may endanger the safety of the pipeline;
- (i) any line-break, encroachment or dangerous situation detected under regulation 26(h) shall be promptly reported to the Authority;
- (j) all underwater crossings shall be inspected not less than once in five years to ensure that-
 - (i) there is sufficient cover for the pipeline; and
 - (ii) the safety of the pipeline at the crossing is not endangered in any way.
- (k) any repair to the pipeline shall be carried out within the existing right of way and in accordance with –
 - (i) best international petroleum industry practices; and

- (ii) the safety provisions contained in the standards API RP 1107 and API RP 1111 or their recognised equivalent standards.
- (l) the repaired section of the pipeline shall be pressure-tested at the same expected operating conditions relating to a new pipeline;
- (m) the riser installation or an offshore pipeline connected to a platform shall be visually inspected every year for physical damage or corrosion in and above the splash zone;
- (n) the record of an inspection under regulation 26(m) shall be kept on location for verification, whenever the need arises.

Gas pipelines

27. (1) The operation and maintenance of the gas pipeline, shall be as specified in regulation 21 of these Regulations and the associated corrosion system, shall be in accordance with the provisions of the latest edition of NACE Standard SP0169 or equivalent standards.

(2) A pipeline that is not put into use after –

- (a) six months of its construction, shall be filled with inert gas or nitrogen;
- (b) one year of its construction, shall be pressure-tested and certified by the Authority before it is put into use.

(3) The gas pipeline system shall be well purged with water, air or inert gas before any repair is undertaken and the environment of the repair site shall be monitored constantly with a gas detection device to ensure adequate safety.

Cathodic protection and corrosion control

Design of cathodic protection

28. The design for the cathodic protection from external and internal corrosion of a ferrous pipeline and its components shall be in accordance with the specifications and procedures prescribed in the latest edition of NACE Standard SP0169 or equivalent standards.

Maintenance of the cathodic protection system

29. (1) The cathodic protection system shall be–

- (a) maintained in a serviceable condition; and

(b) electrically tested at least once in two years.

(2) Where a test under regulation 29(1)(b) reveals a weakness in the cathodic protection system, appropriate measures shall be taken and the report of such test and measures shall be sent to the Authority within 48 hours.

(3) All sources of impressed current such as rectifiers and other associated devices in the cathodic protection system, shall be inspected and tested every four months to ensure their proper functioning.

Cathodic protection system

30. (1) The cathodic protection system shall be provided by a galvanic anode or an impressed current anode system which shall –

- (a) be installed in such a way that it mitigates corrosion; and
- (b) contain a method of determining the degree of cathodic protection achieved on the pipeline.

(2) The criteria for selecting the appropriate protection system shall be as listed in paragraph 7.5 of section 7 of the latest edition of NACE Standard SP 0169.

(3) A cathodic protection system shall be –

- (a) installed not later than one year after the laying of the pipeline and in such a way that the pipe coatings at the point of installation are kept intact;
- (b) electrically isolated at all inter-connections to other pipeline systems or structures except where the two structures are mutually protected by the same system;
- (c) protected against damage by atmospheric electrical discharges, underground cables and power-lines.

(4) Except for underwater pipelines, sufficient test leads shall be installed at test stations of buried pipelines for the periodic checks of the effectiveness of the cathodic protection system which shall be carried out by electrical measurements.

(5) A minimum distance of three metres shall be maintained between the electric transmission tower footings, ground cables and earthings, power-lines and the pipeline being protected.

(6) For the purposes of subparagraph (4) of this paragraph, "test stations" includes all pipe casing installations, insulating joints, crossing and main manifold junctions.

External corrosion control

31. The requirements for the application of coating to the pipeline and its cathodic protection for the control of external corrosion of a buried or submerged pipeline are as follows:

- (a) the coating shall –
 - (i) be applied in such a way that it will mitigate corrosion and effectively resist under-film migration;
 - (ii) be ductile and strong enough to resist cracking and damage during handling and under soil stress;
 - (iii) be compatible with any supplemental cathodic protection;
 - (iv) if it is on insulating type material, have low moisture absorption;
 - (v) be applied in such a way that no irregularities protrude through it and no holiday gaps exist anywhere on the pipeline.
- (b) the points of connection of any attachment to the pipeline shall be sealed with the coating.

Internal corrosion control

32. (1) The requirements for the corrosion control of a pipeline are as follows:

- (a) no corrosive material shall be transported in a pipeline unless appropriate measures have been taken to mitigate the corrosive effect of the material on the internal coating of the pipeline;
- (b) internal corrosion shall be prevented by –
 - (i) frequent pigging, inhibiting, or scraping; or
 - (ii) the application of internal coating on the pipeline before it is laid.

(2) Whichever method is used under regulation 32(1)(b), appropriate precaution shall be in the case of:

- (a) inhibition of the pipeline, sufficient coupon holders shall be used; and
- (b) application of internal coating, the established industry standards of internal coating material shall be complied with.

Monitoring of internal corrosion

33. (1) Internal corrosion in a pipeline shall be monitored by running an intelligent pig or other internal survey instrument through the pipeline at least once in five years.

(2) A report of a monitoring survey carried out under regulation 28(1) shall be sent to the Authority.

Procedure for upgrading or downgrading pipeline

34. (1) A licensee who desires to upgrade or downgrade the maximum operating pressure of a pipeline shall make an application to the Authority stating the following:

- (a) the reason(s) for the desire to upgrade or downgrade the pressure;
- (b) the leak history of the pipeline to be upgraded or downgraded;
- (c) the modification required to be made to the pipeline system to render it qualified for upgrading or downgrading in accordance with the specifications contained in ANSI/ASME 31.8;
- (d) the test that the licensee intends to carry out on the pipeline system in accordance with regulation 12 of these Regulations in which the upgraded or downgraded maximum operating pressure shall now be the new parameter to use for the tests;
- (e) such other information as the Authority may deem necessary to enable it to take a decision on the application.

(2) The Authority may grant approval for the upgrading or downgrading of the pipeline and its operation at the upgraded or downgraded operating pressure if the Authority is satisfied with the information supplied to it under regulation 34(1).

Change in service of the pipeline

35. (1) A licensee shall make an application to the Authority where it desires to change the nature of the fluid transmitted by the pipeline from:

- (a) liquid petroleum to gas; or
- (b) sweet gas to corrosive gas or
- (c) hydrocarbon to water
- (d) the approved usage to any other as the case maybe.

(2) A licensee who makes an application under regulation 35(1) shall state –

- (a) the reason(s) for desiring the change;
- (b) the leak history of the pipeline concerned;
- (c) the modification required to the pipeline system to render it capable of performing the new service;
- (d) such other information as the Authority may deem necessary to enable it to undertake a realistic assessment of the application for the purpose of approval.

(3) The Authority may grant approval for the change in service of the pipeline if satisfied with the information supplied to it under regulation 35(2).

Discontinuation, abandonment and resumption of operation of pipeline system

Discontinuation

36. (1) A licensee who desires to discontinue the operation of the pipeline system or its ancillary facilities shall apply to the Authority giving at least three (3) months' written notice of his intention to do so, as prescribed by the Authority.

(2) An application made under regulation 31(1) shall be accompanied with –

- (a) the reason(s) for the discontinuation of the pipeline system or its ancillary facilities;
- (b) two copies of the plan of the entire pipeline or part thereof in which the operation is to be discontinued shown in green colour;

- (c) the method proposed to be used for the discontinuation of operations.

(3) The Authority may, if satisfied with an application made under regulation 36(1), grant a discontinuation approval upon such conditions as it may determine.

(4) On the grant of an approval made under regulation 36(3) and subjected to any condition attached to the approval, the pipeline shall be –

- (a) disconnected from all other facilities connected to it, including other pipelines, metering stations, ancillary facilities and appurtenances;
- (b) purged of petroleum liquid or gas by using water, and in the case of offshore pipelines, seawater, or inert material and capped at both ends with moisture resistant materials.

Resumption of operation of discontinued pipeline

37. (1) A licensee who desires to resume operations in an abandoned or a discontinued pipeline shall apply to the Authority for approval.

(2) An application made under regulation 37(1) shall be accompanied with the:

- (a) reason(s) for the resumption of operations; and
- (b) proposed method to be used in reactivating the pipeline.

(3) The Authority may, if satisfied with an application made under regulation 37(1), approve the reactivation of the pipeline under such conditions as it may determine.

(4) A pipeline reactivated under regulation 37(3) shall be tested as a new pipeline under the proposed operating conditions of the pipeline.

Decommissioning of pipeline

38. Where a pipeline is to be completely abandoned, such pipeline shall be decommissioned pursuant to the procedures under the decommissioning and abandonment regulations.

Revocation

39. In addition to such other conditions as may result in the revocation of a pipeline licence pursuant to section 120 of the Act, the Authority may revoke a pipeline licence if no construction work has started within two years after the granting of the licence.

Fees

40. The following fees shall apply:

TRANSPORTION AND DISTRIBUTION			
		Processing fee	Application fee
1	Annual Pipeline Rental Fees	USD 10 per km	
2	Pipeline Route Survey (PRS)	USD 50 per km	
3	Licence to Establish (LTE)	USD 10,000	USD 500
4	Licence to Construct (LTC)	USD 1000	
5	Pipeline Licence (PLL)	USD 500 per km	USD 500
6	Revalidation Of PTS/LTE	USD 10,000	
7	PLL Restriction Order	USD 10,000	USD 2,000
8	Change Of Service	USD 2,000	
9	Upgrading and Downgrading of a Pipeline	USD 2,000	
10	Approval To Pre-Commission and Commission	USD 2,000	
11	Decommissioning Fee	Please refer to Decommissioning and Abandonment Regulations	
12	Licence To Operate (LTO) Fees (Per Annum)	USD 10,000 per annum	USD 500

Offences and Penalties

41. (1) Pursuant to section 229 of the Act, any person who commits an offence under section 228 or 230 of the Act in relation to the matter under these regulations or any provisions of these regulations shall be liable to a penalty not less than USD \$4,000,000 or its naira equivalent at the prevailing CBN exchange rate.

(2) In addition to regulation 41(1) above, the Authority may require any person who commits an offence under these regulations to have the pipeline in respect of which the offence was committed and any ancillary installation removed, and the equipment seized and disposed of in a manner as determined by the Authority.

(3) A person who is required by the Authority under regulation 41(2) to have a pipeline or any ancillary installation removed shall make good any damage done to any land by such removal.

(4) The Authority shall where a party who is required to remove a pipeline or any ancillary installations under this paragraph fails to comply, have the power to carry out the removal on its own authority directly or through an agent appointed by it. The cost of such removal shall be paid from the proceeds realised from the sale or disposal of the removed pipes or equipment and the balance if any shall be forfeited by the Authority.

Definitions

42. In addition to the definitions contained in the Petroleum Industry Act, 2021 the following definitions shall apply to these Petroleum Pipeline Regulations.

“Act” means Petroleum Industry Act, 2021.

“ANSI”, means American National Standards Institute

“ASME”, means American Society of Mechanical Engineers

“ASTM”, means American Society for Testing and Materials

“API”, means American Petroleum Institute

“NACE”, means The National Association of Corrosion Engineers

“PIPELINE LICENCE” means any licence for pipelines under the purview of the Authority for conveying petroleum liquids, gas and its derivatives, transportation pipeline licence, distribution pipeline licence, transmission pipeline licence

"pipeline" means all parts of any tubular infrastructure through which petroleum is conveyed, including pipes, valves, pumping and compressor stations and other equipment appurtenant to pipes

Short title

43. These Regulations may be cited as the Petroleum Pipeline Regulations, 2022 and are regulations under section 33 of the Petroleum Industry Act, 2021.