



DEPARTMENT OF
PETROLEUM RESOURCES
...Petroleum Regulatory Agency Of Nigeria

Applicable to all Oil & Gas Operators

GUIDELINES FOR THE DESIGN, CONSTRUCTION, OPERATION AND MAINTENANCE
OF OIL AND GAS PIPELINE SYSTEMS IN NIGERIA

Code: DPR Guide 0027 – 2021

Effective Date: 14th October 2021

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ISSUED BY


DEPARTMENT OF PETROLEUM RESOURCES

2021




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1. INTRODUCTION

1.1 Purpose


These Guidelines are issued pursuant to the provision of the Oil Pipeline Act, 1956, Petroleum Act 1969 and its amendments, Oil and Gas Pipeline Regulations 1995 and Mineral Oils (Safety) Regulation 1963. It prescribes the procedures for the grant of licences and approvals for the design and construction of oil and gas pipelines and the guidelines for the construction, commissioning, operation and maintenance of pipelines and their ancillary installations.

1.2 Scope

These guidelines shall be applicable to all pipeline (section 11(2) Oil Pipeline Acts Cap 338 LFN 1990) systems employed for the service of transporting hydrocarbon fluid or fluids associated with operations related to Petroleum exploitation, production, refinery and product distribution. Open access pipeline systems shall observe any additional statutory provisions of the Open access statutory framework which are which are not covered in these Guidelines.

1.3 Definitions Of Terms

- I. **MIP** – Manufacturing Inspection plan and is required during project implementation to ascertain the technical integrity of fabricated line pipes, coating and all other associated components of the pipeline system.
- II. **OPEN ACCESS PIPELINE** – Pipeline system operated within the open access regime.
- III. **PIPELINE**- A pipe or tubing used in the transportation of hydrocarbon resource from the first gathering manifold to all the facilities required for processing, distribution and export. Section 11(2) of the Oil Pipeline Act Cap 338 LFN 1990 defines pipeline as a means for the conveyance of mineral oils, natural gas and any derivatives or component, and any substance (including steam and water) used or intended to be used in the production or refining or conveying of mineral oils, natural gas and any of their derivatives or components.

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IV. **PIPELINE SYSTEM-** All parts of those physical facilities comprising a particular pipeline through which hydrocarbon resource flows, including pipe, valves, and other appurtenances attached to the pipeline such as, pump or compressor stations, regulating and metering stations, block valve stations, electrical equipment stations for Cathodic Protection etc.

2. BASIC STATUTORY PIPELINE APPROVALS AND LICENCES

2.1 Overview of Pipeline Approvals and Licences

All applications for approvals and licences for the design, construction and operation of any pipeline shall be made to the Department of Petroleum Resources with evidence of payment of prescribed fees, as applicable. The applications steps are depicted below:

2.1.1 Applications Relating to Pipeline Route and Construction

The application steps are as follows

- i. Permit to Survey
- ii. Licence to Construct/OPLL


2.1.2 Application Relating to Engineering of Pipeline System

For the engineering processes of the pipeline system, the application/approval steps are as follows:

- i. Conceptual Design / Front-End Engineering Design
- ii. Detailed Engineering Design
- iii. Notification on commencement of Construction
- iv. Pre-commissioning
- v. Introduction of Hydrocarbon / Commissioning.
- vi. Licence to Operate the Pipeline. Note this licence to operate for pipeline will be renewed annually when the pipeline is in operation

Note:

- i. The minimum design and construction requirements are contained **Section 3** and **Section 4** of these Guidelines for oil and gas pipelines respectively.
- ii. For Facility Development Projects with pipelines as part of the SOW, Pipeline Approvals and Licences process depicted above shall apply to the pipeline SOW.


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- iii. Offshore flowline, pipelines and riser systems shall follow the application process depicted above. However, the minimum requirements for design and construction are contained in **Section 5**.
- iv. The minimum requirement for operations and maintenance of pipeline system are contained in **Section 6**
- v. DPR Representative shall be attached to the pipeline development project for the purpose of regulatory guidance in line with **Section 2.5.2** of these guidelines.
- vi. Open access pipeline systems shall comply with all the statutory requirements of these Guidelines and additional requirements specified by applicable open access regulatory frameworks such as in the Nigerian Gas Transportation Network Code (NGTNC) etc.

2.2 Permit To Survey a Pipeline Route

All Pipelines, without exceptions shall undergo the Permit to Survey application process, hence it shall be mandatory for the route of the proposed pipeline to be surveyed or that of an existing pipeline to be re-surveyed before the grant of an Oil Pipeline Licence or the renewal of an expired Oil Pipeline Licence, irrespective of size, length, service, location, terrain, etc. For the purpose of this survey, a Permit to Survey shall be obtained in line with the provisions of Sections (4), (5) and (6) of the Oil Pipeline Act. An application for a Permit to Survey shall be accompanied by the following:

- a. A topographical map of the pipeline drawn on Scale 1:50,000 for pipelines of length up to 50 kilometre and 1:100,000 for pipelines of lengths between 50 kilometre and 100 kilometre and 1:250,000 for pipelines above 100 kilometre in length. Topographical maps shall be presented in a GIS format developed with Minna as a geo-reference datum.
- b. Evidence of payment of the following applicable fees for Permit to survey paid via the Remita and DPR IGR platform (igr.dpr.gov.ng):
 - i. Application fee of ₦20:00
 - ii. Grant fee ₦ 50:00 only, and
 - iii. Processing fees of ₦ 500,000:00 and any other fee as specified on (DPR IGR Platform)

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Note:

- i. It is statutory for the Department to participate in the ROW inspection as provided on Appendix 4: Statutory Compliance Checklist for Pipelines.
- ii. The requirements of National Data Repository (NDR) Regulations, 2020, shall apply for the charting of the pipeline per stand sheet and any other data that will be released from the Repository.


2.2.1 Survey Activity for Pipelines

In reviewing the application for PTS, the DPR shall seek consents and no objections from other agencies such as Ministry of Lands, NPA, NIWA, Railway etc. as applicable, depending on the interference by the proposed pipeline.

Following the issuance of PTS, the proponent shall within validity of the permit proceed with activities permitted in the oil pipeline act for the purpose of establishing the route for the proposed pipeline. In line with part 6 of the Oil Pipeline Act, the proponent shall ensure the following in the selection of ROW:

- i. Any other consent required for the PTS which were not previously obtained are duly secured. For this purpose, a minimum of 14 days’ notice shall be given. Special attention shall be given to venerated lands as described in the Oil Pipeline Act.
- ii. It takes reasonable steps to avoid unnecessary damage to the environment.
- iii. Compensations are made to owners and occupiers of any property for any damage done
- iv. Any dispute that may arise shall be settled in line with the Part 4 of the Oil Pipeline Act
- v. The ROW selected allows access for construction, operations, inspection, maintenance, testing or in an emergency.

Note: The DPR shall be notified of any change of route/variations within the validity of a PTS.

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2.2.2 *Validity for Permit to Survey*

A Permit to Survey is valid for two years. Application for the revalidation of PTS after the expiration of validity shall be considered on the following conditions:

- i. The re-inspection of the ROW shows no reasonable change to the conditions under which the PTS was earlier issued.
- ii. A fee of **USD5,000** is paid upon the application.


2.3 **Licence To Construct Pipelines/OPLL**

2.3.1 *Application for OPLL /Licence to Construct*

Oil Pipeline Licence to Construct shall be applied for within the validity of the Permit to Survey. In this regard, the provisions of Part III of the Oil Pipelines Act shall be followed in making such applications, in addition to which the following requirements shall be fulfilled:

- a. A statement indicating the service that the pipeline will render.
- b. Schedule II – The technical specifications of the pipeline.
- c. The characteristics of the fluid to be conveyed through the pipeline.
- d. The total estimated cost of construction.
- e. The List and the OGISP status of the prospective companies being considered for the construction of the pipeline.
- f. Schedule 1 – The detailed survey description of the proposed pipeline Right of Way in accordance with the Nigerian National Grid, indicating the width of the right of way with the coordinates (In approved geodetic formats) of the various points of intersections.
- g. The plan of the pipeline showing the following:
 - i. The proposed route of the pipeline marked in red for liquid and green for gas pipelines respectively, with sections and quarter sections shown.
 - ii. The location of each point at which there is a change in any of the following parameters:
 - (a) Outside or nominal diameter of the pipeline
 - (b) Wall thickness of the line pipe material
 - (c) Type and Grade of line pipe.
 - (d) Designed maximum operating pressure.

- iii. Direction of fluid flow along the pipeline
- iv. The locations indicated by symbols of any installations along the pipeline.
- v. The locations of the points at which other pipelines would be crossed by the new pipeline indicating the owner of the pipeline to be crossed.
- vi. The relative position of any existing pipeline or pipeline in an adjacent right of way within 100 meters should be indicated stating the name of the owner of such a pipeline.
- vii. The regional topography of the area along the pipeline route within a distance of 100 meters on both sides should be indicated including any watercourses to be crossed.
- h. The plan of the pipeline showing the following details:
 - i. Location of any anchors or expansion loops
 - ii. Location and operating details of corrosion prevention devices, main line valves and any emergency shut down devices.
 - iii. Pig launching and receiving points and any tie-in points with operating details.
- i. The hydraulic profile of the pipeline indicating the position of any pumping or booster stations and velocity profile (indicating erosional velocity boundaries).
- j. The general description and proposed design / operational parameters shall be given for the ancillary facilities along the pipeline or its terminal ends such as compressor stations, manifolds, meter banks etc.
- k. The plan and profile of the pipeline showing the manner in which any highway, railroad, waterway, powerline or other pipeline lying along the route would be crossed.
- l. The construction schedule to be approved by the Department
- m. Evidence payment of the following applicable fees for Permit to survey paid through the remita and DPR IGR platform (igr.dpr.gov.ng)
 - i. Application fee of ₦20:00
 - ii. Grant fee ~~₦~~ 50:00 only,
 - iii. Computed annual ground rent for the first year, Calculated as ₦ 20 per mile or ₦ 12.50k per km, and
 - iv. Processing fees of ₦ 500,000:00 (DPR IGR platform)

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Note: The applicant shall inform the Department should there be a change of diameter, at any time, during application at OPLL.

2.4 Approval of OPLL

At OPLL, Consents and no objections from other agencies such as Ministry of Lands, NPA, NIWA, Railway etc. depending on the interference by the proposed pipeline shall be sought. In line with part III of the Oil Pipeline Act, the proponent shall be required to place publication in, the following mediums:

- i. State gazette for each state through which the pipeline passes,
- ii. Federal gazette
- iii. Newspapers circulating in areas through which the route of projected pipeline passes.
- iv. Other operators and lease holder with possible interference with the pipeline.
- v. Publication in areas likely to be affected by the OPLL
- vi. Others as determined by DPR


Public hearing shall also be held before a licence is granted. The public hearing shall document no objections for the purpose of issuance for the OPLL. Permit to survey another route shall be issued upon application when there is an objection to the OPLL

Note: Following the issuance of OPLL, the Proponent shall proceed with activities for the establishment of the pipeline on the proposed route. Proponents are to note that various engineering approvals in line with Section 2.1.2 of these guidelines shall be obtained for the design, construction, and operation of pipeline.

2.4.1 Deviations on OPLL

The OPLL is valid for period not exceeding twenty (20) years. For any deviation from the original conditions of the OPLL e.g., change of route, pipe specification, diameter etc, the Re-validation of OPLL shall be effected for any pipeline within the validity period of existing OPLL. The following shall be supplied by the pipeline licensee for the revalidation:

- i. Justification/Reason for re-validation
- ii. Schedule 1 – Survey Description of existing pipeline ROW.
- iii. Schedule 2 – Technical Specification of the pipeline system.
- iv. Any other supporting documentation.

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An application for re-validation shall be accompanied by a payment of **₦ 250,000:00** only, made payable to the Department of Petroleum Resources as processing fees.

2.4.2 Pipeline Community Engagement

Every pipeline development activity shall be expected to develop a sustainable Community Engagement Program (CEP) for all its pipeline communities. The CEP shall optimally involve all necessary stakeholders in both its generation and implementation and shall be submitted for the approval of the Department along with the request for grant of Oil Pipeline Licence. As part of the community engagement program, company shall consider incorporating the following:

- i. Pipeline community shall supply manpower required for conducting an effective R.O.W surveillance coordinated by the community head. Surveillance activity shall be conducted under an MOU executed between the pipeline owner and the community leader spelling out responsibilities, allowances and reporting pattern.
- ii. Pipeline owner shall optimally utilize pipeline community local content capacity in executing all pipeline related projects.

Note: Renewal of OPLL shall be granted only on the submission and approval of a comprehensive pipeline CEP.


2.5 Conceptual Design / Front-End Engineering Design

All pipeline development shall duly obtain an approval the conceptual design/FEED prior to commencement of detailed design and construction. Conceptual Design are Engineering design activities required to specify pipeline development programs such as SOW, BFD, technical specifications etc. Relevant technical officers of the Department shall be nominated to provide regulatory guidance throughout the entire project execution.

2.5.1 Responsibilities of DPR Project Representatives

The Relevant technical officers of the Department nominated for the project shall be viewed as part and parcel of the Project Management Team, therefore, shall be actively involved and abreast of all activities for the delivery of the project. Their responsibilities and deliverables include but not limited to the following:


- i. Participation in the development of project deliverable as applicable. Review, scrutinize and monitor the various elements of project phases and related work

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activities, as per verification plan, that went into the development of the intended facility to ensure that each stated assurance deliverables are being satisfied.

- ii. Submission of periodic report to the Department of Petroleum Resources on the status of activities, areas of deviations from either statutory requirements or industry best practices and follow up on instructions as may be issued by the DPR.
- iii. Liaise with resident project manager/project team to provide guidance towards the development/implementation of an effective statutory compliance.
- iv. Monitor the development of the pipeline system design philosophy, project work-scope for consistency with all statutory requirements, approved codes, and standards. Assess and validate the implementation of the codes, and standards in line with the technical specifications for the execution of the pipeline development project.
- v. Attend all technical meetings/reviews and participate in all Technical, Safety, and Engineering Studies for the project while monitoring the implementation of decision taken at such meetings/reviews/studies.
- vi. Carry out periodic and/or joint inspection activities at the fabrication yards/manufacturer’s workshop to ensure appropriate quality control/quality assurances are followed in the integration of components and equipment.
- vii. Review procedures for installation, hook-up, and commissioning and monitor compliance and participate the technical assessments involved as applicable.
- viii. Ensure the optimal participation / input of the Department in the execution of the project. This includes facilitation of quarterly management reviews, participation in surveys, inspections, and other Milestone activities as applicable.
- ix. Verify / validate the accreditation and OGISP status of all companies required for the execution of the project.
- x. Evaluate facility operation manual in readiness to operate.

Note: In addition to the Project reps, milestone Technical, Safety and Engineering studies, FAT, SAT etc shall require the participation of relevant Subject Matter Experts from DPR.

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2.5.2 Application for Conceptual Design / Front-End Engineering Design

Application for approval of conceptual design/FEED shall be forwarded to the Department of Petroleum Resources with the following deliverables:

- i. Basic design concept/FEED adopted for the development of the proposed pipeline system
- ii. Scope of work for the proposed pipeline development project
- iii. The design basis of the pipeline system
- iv. The approved technical specification for the proposed pipeline development project
- v. A preliminary plan and profile for the proposed pipeline system
- vi. A copy of the approved FDP associated with the pipeline project where applicable
- vii. A copy of Preliminary Environmental Impact Assessment approval for pipeline applications of 20km and above.
- viii. Basic concept of leak detection and general pipeline integrity monitoring.
- ix. A copy of the planned organogram of the project execution / management team.
- x. A copy of the planned local content program for the proposed project.
- xi. Evidence of Payment of ₦ 500,000:00 only made payable to the Department of Petroleum Resources as processing fees.
- xii. Copy of the preliminary pipeline development project schedule in either level 0 or 1
- xiii. A copy of the preliminary project cost and a statement on the planned funding method.

2.5.3 Approval of Conceptual Design / Front-End Engineering Design

Company shall be requested to make a formal presentation of its conceptual design to the Department after the receipt of above deliverables. The Department shall thereafter communicate approval of conceptual design for the proposed pipeline development project. Where such submission/presentation is not adequate, the Department shall notify the company not more than four (4) weeks from the date of the presentation why such approval shall not be granted.

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An approved conceptual design/FEED shall form the basis for the development of the proposed pipeline system. Where a variation from the approved conceptual design/FEED is considered, necessary such deviations shall be communicated to the Department.

Note: Where line pipes shall be procured as Long Lead Items (LLI), it shall be necessary for the licensee to notify the Department of all proposed manufacturing Inspection programs at-least six weeks prior to commencement of pipe mill activities and make arrangements for the full participation of the DPR representatives. Site witness sheet signed by a representative of the Department and other parties be forwarded.

2.6 Detailed Engineering Design


All pipeline development shall duly obtain an approval of the detailed engineering design prior to commencement of procurement, construction, and installation activities. Detailed Engineering include activities required to develop an approved conceptual design into an executable level for provision of a pipeline system. Nominated technical officers of the Department shall continue to provide regulatory guidance throughout the entire project execution.

Note: For Facility Development Projects with pipelines as part of the SOW, Pipeline Approvals and Licences process depicted above shall apply to the pipeline SOW.

2.6.1 Application for Detailed Engineering

Application for approval of detailed design shall be forwarded to the Department of Petroleum Resources with the following deliverables:

- i. Approved for construction PFS with fluid flow calculation notes and / or material balances (where available) of pipeline system
- ii. Approved for construction P&ID for the pipeline system
- iii. Schematic Plan and profile of the pipeline system showing manner of crossings, pipeline marker positions, Pipeline grade, cathodic protection, line sectionalisation valve stations, etc.
- iv. An arc GIS spatial grid of the pipeline system with reference to Minna Datum or approved geodetic format.
- v. A copy of the QA /QC approved for the project execution

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- vi. A copy of the major engineering, & Technical Safety Control (TSC) reviews conducted within the detailed design phase.
- vii. A copy of the pipeline construction plan inclusive of WPS / PQR
- viii. A copy of the technical data sheets for pipeline fittings / accessories
- ix. A copy of the hydraulic chart as well as velocity profile for the proposed pipeline system.
- x. A copy of the approved manufacturing Inspection plan for fabrication of line pipes/ coating, as well as pipeline fittings / accessories.
- xi. A copy of the stress / fatigue analysis of the pipeline system.
- xii. A copy of blow-down and de-pressurization plan for the pipeline system.
- xiii. Evidence of Payment of **₦ 500,000:00** made payable to the Department of Petroleum Resources as processing fee.
- xiv. Remote monitoring system (for leak detection and surveillance) for the pipeline
- xv. A copy of Provisional EIA approval for pipeline applications of 20km and above. For pipeline system less than 20km, a copy of the environmental management plan shall be submitted.
- xvi. A copy of the Design Safety Case Approval
- xvii. Reliability, Availability, Maintainability and Safety (RAMS) analysis
- xviii. A copy of the proposed pipeline de-commissioning plan

2.6.2 Approval for Detailed Engineering

For the review of Detailed Engineering package for a Pipeline, joint review workshop shall be required. For such workshops, the proponent shall be required to make technical presentations on all design considerations for the pipeline. The Department of Petroleum Resources shall convey approval of detailed design for the proposed pipeline development project at least four (4) weeks from the date of the receipt of complete detailed design approval dossier. Where such approval cannot be granted, the Department shall notify the company not more than six (6) weeks from the date of receipt of application why such approval has not been granted.

2.6.3 Summary Technical and Safety Studies for Pipeline Design

The Department shall participate in all technical studies for the concept, design, and construction of the pipeline. The company shall comply with the **Guidelines for**

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Compliance with the Technical Safety Control Requirements for Facility Development Projects and Modifications for its Technical and Safety Studies and **Safety Case Guidelines for Oil and Gas Facilities in Nigeria** for the development of Design Safety Case for the project. The Operator shall inform the Department prior to the studies for nomination of personnel. The studies to be carried out are but not limited to the following:

- i. HAZID
- ii. HAZOP
- iii. Design/ Constructability Review
- iv. Model Review
- v. Post-construction Risk Assessment workshop
- vi. Other Milestone Risk Assessment studies that ensure safety of the Pipelines Development and Operations


Note: These studies may be conducted individually or as integrated studies/ workshop.

2.6.4 Summary of Environmental Studies

The Company shall liaise with the DPR for its environmental studies related to the project. For the Environmental requirements, the company shall comply with requirements of EGASPIN 2018 as appropriate. In line with the EGASPIN, **for pipeline of 20km and above**, the Operator is expected to carry out Preliminary Impact Assessment study of the project on the Environment and obtain approval from DPR. The PIA shall be the basis for generation of Terms of Reference for EIA which shall also be approved by the Department. The Draft EIA approval from DPR shall be submitted alongside the FEED and a Final EIA approval when DED is frozen. Environmental Management Plan shall be developed for the pipeline system **less than 20km**.

2.7 Notification for Construction

The licensee shall inform the Department prior to the start of construction activities. The design, construction and testing of the pipeline system shall at the minimum comply with Section 3 and Section 4. Nominated technical officers of the Department shall continue to provide regulatory guidance.

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2.7.1 Factory Acceptance Tests & Pipeline Mill Inspections

As applicable, Factory Acceptance Test (FAT) shall be carried out to evaluate design and operating specifications and assess any discrepancies and non-conformities of the pipeline systems and ancillary equipment prior to the assembly process. The FATs shall be witnessed by nominated SMEs from DPR. Deviations or abnormalities observed during testing shall be documented and corrected prior to shipment.

Furthermore, where line pipes shall be procured as Long Lead Items (LLI), the full participation of the DPR representatives shall be mandatory for Pipeline Mill productions and Inspections. The proponent shall notify the DPR of all proposed manufacturing Inspection programs at-least six weeks prior to commencement of pipe mill activities. Site witness sheet signed by a representative of the Department and other parties shall be forwarded.

Note: Such inspection may require the use of Certified Verification Agents as the DPR may deem fit.

2.8 Pre-Commissioning

Hydrocarbon shall not be introduced into any newly constructed or upgraded pipeline system without the pre-commissioning exercise carried out and witnessed by representatives of the Department. The pre-commissioning are series of approved activities required for the purpose of establishing the availability, functionality and reliability of a pipeline system prior to introducing hydrocarbon for normal transportation operation

An application for the exercise alongside the pre-commissioning schedules and procedures shall be submitted to the Department at-least four (4) weeks prior to the commencement of the exercise.

2.9 Commissioning / Introduction of Hydrocarbon


Hydrocarbon shall not be introduced into any newly constructed or upgraded pipeline system without the approval for commissioning by the Department. Commissioning includes series of activities leading to the introduction of hydrocarbon fluid into a pipeline system that has been successfully pre-commissioned. Commissioning approval shall be granted to any pipeline system that has met the following conditions:

- i. An application has been forwarded for grant of commissioning/introduction of hydrocarbon approval
- ii. A satisfactory pre-commissioning report
- iii. Completion of a post-construction risk assessment workshop with participation of the Department
- iv. A completed emergency response exercise report
- v. Payment of ₦ 500,000:00 made payable to the Department of Petroleum Resources as processing fees.

2.10 Licence To Operate Pipelines

An application for Licence to Operate for a pipeline shall be submitted to the Department after the commissioning/introduction activities and shall be renewed annually. In this regard, the provisions of Part III of the Oil Pipelines Act and Section 6 subsection 2(e) of the Petroleum (Drilling and Production) (Amendment) Regulations, 2019 shall be followed in making such applications, in addition the following requirements shall be fulfilled:

- a. A statement indicating the service that the pipeline will render
- b. The characteristics of the fluid to be conveyed through the pipeline.
- c. The schematic plan of the pipeline showing the following:
 - i. The route of the pipeline marked in red, with sections and quarter sections shown.
 - ii. The location of each point at which there is a change in any of the following parameters:
 - (a) Outside or nominal diameter of the pipeline
 - (b) Wall thickness of the line pipe material
 - (c) Type and Grade of line pipe.
 - (d) Designed maximum operating pressure.
 - (e) Direction of fluid flow along the pipeline.
- d. The schematic plan of the pipeline showing the following details:
 - i. Location and operating details of corrosion prevention devices, main line valves and any emergency shut down devices.
 - ii. Pig launching and receiving points and any tie-in points with operating details.

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- e. A copy of the operation and maintenance plan/strategy of the pipeline system
- f. Evidence of Payment of \$10,000:00, made payable to the Department of Petroleum Resources as Licence to Operate fee.

2.11 Transfer of Ownership

An application for change of ownership to a Permit to Survey or an Oil Pipeline Licence is permissible, in line with the provisions of Section 17 (5d) of the Oil Pipeline Act.

2.11.1 Application for Transfer of PTS


An applicant shall notify the Department in writing of a change in the name of the Permit holder during the Permit to Survey application process or during the validity of an already issued PTS. The following shall be supplied by the applicant for the transfer of ownership:

- i. Certified true copy of Certificate of Incorporation, forms CAC2 and CAC7
- ii. Certified true copy of Memorandum & Article of Association.
- iii. Deed of Assignment/Agreement between both parties.
- iv. Release letter from previous company.
- v. A copy of previous Permit to Survey, if already issued, in the previous company's name
- vi. Justification/Reason for Transfer of PTS
- vii. Any other supporting documentation.

2.11.2 Application for Transfer of OPLL

An applicant shall notify the Department in writing of a change in the operatorship of a pipeline. The following shall be supplied by the pipeline licensee for the transfer of ownership:

- i. Certified true copy of Certificate of Incorporation, forms CAC2 and CAC7
- ii. Certified true copy of Memorandum & Article of Association.
- iii. Deed of Assignment/Agreement between both parties.
- iv. Release letter from previous company
- v. Previous Permit to Survey, OPLL, Licence to Operate, where applicable in the previous company's name
- vi. Justification/Reason for Transfer of OPLL
- vii. Any other supporting documentation.

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Note: An application for transfer of OPLL, which has been issued, shall be accompanied by a payment of **₦ 500,000:00** only, made payable to the Department of Petroleum Resources as processing fees.

3. LIQUID PETROLEUM TRANSPORTATION PIPING SYSTEMS


3.1 Definition

Liquid Petroleum shall include crude oil, refined products, Natural Gas Liquids, condensates, and liquefied Petroleum Gas.

3.2 Minimum Design Criteria

The design criteria prescribed herein shall apply to new pipeline systems, relocation or replacement and upgrading of existing pipelines.

- a. The two commonly acceptable grade of line pipes for this service shall be either those materials conforming with the ASTM A106 Grade B or API 5L Grade B for low pressure range and any of the API 5LX range for high working pressure or large diameter pipeline where a lower grade will require excessively thick walls to cope with the desired working pressures
- b. The line pipe shall be seamless in fabrication and be Electric Resistance Welded (ERW) or Double Submerged Arc Welded (DSAW) types only.
- c. The design shall generally be in accordance with the standard ASME B31.4-2019 and its subsequent revisions published by the American Society of Mechanical Engineers under the title “Pipeline Transportation Systems for Liquids and Slurries”. In addition to the general provisions of the code, special attention shall be paid to the following:
 - i. Wave and current loads shall be taken into account in the stress calculation of pipelines to be laid at sea or riverbeds without burial.
 - ii. Calculation of limit stresses due to sustained load, thermal expansion, and occasional loads where applicable shall be strictly in conformity with paragraph 402 of the code.
 - iii. Design and material selection of the pipeline components such as tees, elbows, bends, valves, fittings etc. shall in all respects, conform to chapters II and III of the code.

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- iv. No used fitting of an existing pipeline shall be reused on a new pipeline without its original specification being identified and confirmed to be capable to perform the new service
 - v. Threaded joints at both internal and external portions shall all be of the tapered line pipeline thread type conforming with API SPEC 5B or NPT in accordance with ASME B1.20.1-2013
 - vi. The least nominal wall thickness of the threaded portion of the pipe shall not be less than the value specified in ASME B36.10M-2018
 - vii. All threaded joints shall be on sections of the pipeline above ground.
 - viii. If two or more pipelines are to be connected in manner that one will operate at a pressure higher than the other, they shall be so designed that the pipeline system operating at the lower pressure shall not be subjected to any pressure greater than its licensed operating pressure.
 - ix. All pipe fittings, valves and equipment connected to the pipeline shall have manufacturers' ratings which are equal to or greater than the proposed maximum operating pressure of the pipeline.
- d. All pipelines shall have Remote Monitoring System Remote Monitoring systems installed on them.

Note: Other internationally recognised standards approved by the Department shall be accepted.

3.3 Minimum Construction Requirements

This procedure shall apply to new pipelines construction and replacements of existing pipelines. The pipeline construction shall generally follow the steps outlined in Chapter V of the standard ASME B 31.4-2019 or its subsequent revisions. The construction code shall be guided by the following:

- i. The licensee shall inform the Department prior to the start of construction. Nominated technical officers of the Department shall continue to provide regulatory guidance.
- ii. All metallic pipeline material to be buried shall be coated with any of the following systems – coal-tar enamel, Asphalt enamel, polyethylene tape, epoxy,


asphalt mastic, urethane or other material specially approved by the Department for specific reasons.

- iii. All surface pipelines shall be painted, raised and maintained above ground on permanent supports.
- iv. All pipeline construction shall be carried out in a manner that will minimize disturbance to the environment.
- v. Special precautions shall be taken to protect the pipeline from washouts, unstable soil, landslides, or any other hazards that may cause the pipeline to move or be subjected to abnormal loads.
- vi. All pipelines welding shall be in accordance with the provisions of API STD 1104-2013 while welding inspection shall be by non-destructive method preferably using Radiographic method contained in API STD 1104-2013 or its later editions.

3.3.1 Minimum Requirements for Pipeline Burial

- a. Ditching for the pipeline shall follow good pipeline practice and consideration for public safety as provided for in the Standard API RP1102-(R2017) shall be followed.
- b. Minimum soil coverage of pipelines shall be as follows:
 - i. Dry land – 1.0 meter.
 - ii. River crossings and riverbeds – 1 meter.
 - iii. Drainage ditches, Railroad and Highway Crossing – 1.5 metres
 - iv. Rocky Areas – 0.9 metres
 - v. Swamp – 1.0 meter
 - vi. Shipping Channels – 2.0 metres
- c. At railroad and highway crossings, in addition to the specific requirement of the relevant Government Agency responsible for these infrastructures, the following precautions shall be taken:
 - i. Installations of carrier pipe or casing shall be in accordance with API RP1102-(R2017).
 - ii. The casing shall be insulated from its carrier pipe support and shall extend to both sides of the railroad or highway. In the alternative the crossing could be of a thicker wall line pipe covered with compacted full and protective reinforced concrete slab.

- iii. All surface lines shall be similarly buried with casing protections or special construction specified in (ii) above at such crossings.
- iv. Pipeline warning signs shall be conspicuously displayed at both the entry and exit points of the pipeline crossings of railroads, highways, other pipelines, and rivers.
- d. The licensee shall identify any pipeline laying within 30 metres radius of its area of ground disturbance during pipeline construction.
- e. The licensee before commencing any ground disturbance in a populated or controlled area shall first accurately locate the position and alignment of the pipeline with markings and distinguishable warning signs at adequate intervals.
- f. If a pipeline lies within the 30-metre radius of construction, the licensee shall endeavour to first of all, locate the pipeline in question and manually excavate it till it is sufficiently exposed for purpose of identification and avoidance by the construction equipment.
- g. The same precaution in (f) above shall be taken by any third party undertaking any construction activity within this radius of safety zone around any pipeline.
- h. Once the pipeline has been so exposed, no excavation within 1-meter radius of it, shall be allowed
- i. Where in the opinion of the Department, it is desirable to do so, it may direct that an existing pipeline located within the construction zone of a new pipeline in a populated or controlled area be either completely de-pressurized, operated at reduced pressure, or be otherwise protected throughout the period of ground disturbance in its vicinity.
- j. The same precautions as stipulated in (e) and (f) above shall apply to pipeline crossings.
- k. Mainline block valves shall be installed on the upstream side of major river crossings and at pump stations while check valves shall be installed downstream of river crossings.
- l. Mainline valves shall be installed at other sensitive locations of the pipeline such as in industrial, commercial, and densely populated areas where construction activities may pose particular risks of damage to the pipeline. The pipeline right of way in these areas shall be clearly marked with signs for ease of identification.

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Note: Six months after the completion of construction, the licensee shall submit two copies of the as built plan of the pipeline on the same scale as that of the plan submitted along with the pipeline licence.

3.4 Procedure For Inspection and Testing.

The Licensee shall notify the Department of the completion of construction of the pipeline or any sections of it which is due for testing giving notice of not less than one month from the date of commencement of such tests. Inspection shall be guided by the following:

The pipeline material and construction shall be inspected visually and examined radiographically according to the procedure enumerated in Chapter VI of the reference standard ASME B 31.4 – 2019 and internationally recognised standards approved by DPR.

- a. All tests shall generally be hydrostatic and be conducted in a manner that will ensure the protection of life, property, and the general environment of the pipeline.
- b. The entire length of the pipeline shall be tested to the designed rated pressure while any in-line pressure vessel or prefabricated manifold on the pipeline shall be tested to the manufacturer’s specifications in accordance with the Mineral Oils Safety Regulations (MOSR).
- c. The pressure recording instruments to be used for the tests shall have a valid calibration certificate which should not be more than a year of issue and the chart record of the test shall be continuous and legible and all test results and any remedial action taken shall be submitted to the Department for approval before commissioning of the pipeline. The Accuracy of the pressure recorder shall be within two per-cent (2%) of its range.
- d. Unless otherwise permitted by the DPR, pressure test duration shall not be less than four hours of continuous test both for leaks and material failures. Buried pipeline of up to 100 meters in length and all surface running pipelines could be tested for less periods but not lower than (1) hour.
- e. The general guiding rule for environmental protection shall be as follows:
 - i. Where the test pressure shall result in a hoop stress greater than 75 percent of specified minimum yield strength of the pipeline based on the nominal

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wall thickness, and the pipeline does not cross or pass within 100 metres of any environmental protection arrangement, otherwise permission of the DPR would be required to ensure that adequate contingency plans have been made for protecting the environment.


- ii. Any pipeline crossing watercourses shall be tested with adequate environmental precautions taken.

3.4.1 Guide to Pipeline Testing

- a. Unless otherwise authorized by the DPR, the following shall generally apply:
 - i. The actual test pressure throughout the duration of test shall not exceed 110% of the minimum yield strength of the pipe material; hence the testing equipment shall be pre-set not to produce more than this pressure during the test.
 - ii. The test medium shall be water except with special permission of the DPR
- b. All buried pipelines shall be tested to a pressure not less than 1.25 times the internal design pressure.
- c. Surface pipeline transmitting liquid petroleum or gas shall be tested up to a pressure not less than 1.25 times the internal design pressure.
- d. All pipelines shall be tested to a minimum pressure of not less than 700 kilopascals unless otherwise permitted by the DPR. Punctual
- e. The maximum test pressure in all cases shall not result in a hoop stress, greater than 110 percent of the specified minimum yield strength of the pipe material based on its nominal wall thickness.
- f. Valves and fittings on the pipeline under test shall not be subjected to a pressure greater than the manufacturer’s test pressure rating during the test.

3.5 Corrosion Control

The following shall constitute the minimum requirements and the procedure for cathodic protection of ferrous pipe and its components from internal and external corrosion the design of which shall generally follow the specifications and procedures prescribed in NACE SP0169-2013, API RP1160-2019 and other internationally recognised standards approved by DPR for managing pipeline system integrity.

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3.5.1 External Corrosion Control of Buried or Submerged Pipeline


This shall consist of application of coating to the pipeline and its cathodic protection to achieve the following objectives:

A. Protective Coating

- i. Shall be applied in such a way that it will mitigate corrosion and adhere to the pipe metal surface sufficiently enough such that it will effectively resist under film migration.
- ii. Shall be ductile and strong enough to resist cracking and damage during handling and under soil stress.
- iii. Shall be compatible with any supplemental cathodic protection and if is an insulating type material shall have low moisture absorption.
- iv. Shall be applied in such a way that no irregularities protrude through it and no holiday gaps exist in the coating all along the whole length of the pipeline.
- v. The points of connection of any attachment to pipeline shall be equally sealed with the coating, together with the attachments themselves.

B. Cathodic Protection System

- i. This shall be provided by either a galvanic anode or impressed current anode system installed in such a way that it mitigates corrosion and contains method of determining the degree of cathodic protection achieved on the pipeline. The criteria for the selection of an appropriate protection system shall be as listed in NACE SP0169-2013 and relevant subsequent provision, including other internationally recognised standards approved by DPR.
- ii. The system shall be installed not later than one year after the laying of the pipeline in such a way that the pipe coating at the points of installation is kept intact.
- iii. The cathodic protection system shall be electrically isolated at all inter-connections to other pipeline systems or structures except where the two structures are mutually protected by the same system.
- iv. The cathodic system shall be protected against damage by atmospheric electrical discharges, underground cables and power lines.

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- v. Except for underwater pipelines, sufficient test leads shall be installed on buried pipelines for occasional check of the effectiveness of the cathodic protection to be carried out by electrical measurements. Such test stations shall include all pipe casing installations, insulating joints, all crossings and main manifold junctions.
- vi. A minimum separation of 3 meters shall be maintained between electric transmission tower footings, ground cables and earthing, power lines and the pipelines under protection.

3.5.2 Internal Corrosion Control

- i. The general rule shall be the avoidance of transportation of any corrosive materials in a pipeline without appropriate measure taken to mitigate the corrosion effect of the commodity on the internal section of the pipeline.
- ii. Internal corrosion shall be prevented either by frequent pigging, inhibiting, scraping or application of internal coating on the pipeline before laying.
- iii. Whichever method is used, appropriate precautions shall be taken, such as the utilization of sufficient coupon holders when inhibitors are used and the compliance with established industry standards of internal coating materials.

4. GAS TRANSMISSION AND DISTRIBUTION PIPELINE


4.1 General Design Considerations

This section covers the design, fabrication, installation, inspection, and testing, of gas transmission and distribution systems. It shall apply to piping systems required to operate with temperature of between 450F (232 deg. Celsius) and minus 20F (-7 deg. Celsius) only.

4.2 Design Criteria and Materials Specifications

Applicable standard shall be the ASME B31.8-2018 or its subsequent editions under the title “Gas Transmission and Distribution Piping Systems”. Other internationally recognised standards approved by DPR are applicable. The minimum requirement are as follows:

- i. All materials to be used shall generally conform to the specifications in appendix B of the reference Standard ASME B31.8-2018 for structural materials of the line pipe, valves, fittings, flanges, bolting and tubings.
- ii. The pipelines shall be generally seamless or of the ERW and DSAW types.
- iii. Thermoplastic and thermosetting pipe materials shall also be acceptable provided that they conform to ASTM specifications 02513 and 02517 respectively

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and shall be inhibited against material degradation effects of ultra-violet rays if used in locations where the pipeline is exposed to sunlight.

- iv. Weldability of the ferrous pipe material shall be tested in accordance with the requirements of API standard 1104 and other internationally recognised standards approved by DPR.
- v. Adequate provision shall be made for the flexibility of the pipeline while under pressure in the form of anchorage and guide points and for temperature induced stresses by allowing for expansion joint couplings.

4.2.1 Design and Construction of Gas Pipeline

The design and construction of new gas pipelines, the replacement of existing ones and their corresponding corrosion control installation shall conform to the standards and codes specified in ASME B31.8-2018 , National Association of Corrosion Engineers Standards generally referred to as NACE SP0169-2013 and other international recognised standards approved by DPR. The follow shall apply at the minimum:

- a. The process of manufacture of the specified pipeline system shall generally comply with the various specifications of API 5L or its internationally recognised equivalent.
- b. It shall be expected that operator or owner of a licensed pipeline system shall maintain in its custody sufficient manufacturing records and data to substantiate that acceptable industry standard was employed in the production of the pipeline system. Such records include:
 - i. Manufacturing records such as incoming material inspection reports, welding procedure specification / procedure qualification records, in-factory mechanical and chemical test records
 - ii. NDTs results, calibration data or certification of test equipment, approved ITPs and marking schemes, material traceability, dimensional checks.
 - iii. Report of workmanship/defects examinations carried out during manufacturing processes etc.
- c. Long distance gas transmission pipelines shall be made of steel, the design and construction of which shall be governed by the population density indices specified in ASME B31.8-2018 and the corresponding design factors. Also, the


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specified construction types of pipelines in the proximity of main roads and railroads and the mode of their crossing shall be complied with.

- d. The minimum depth of burial shall be as specified in Section 3.3.1 but where these minimum depths could not be achieved, the pipeline at these points shall be encased, bridged, or specially reinforced to withstand any anticipated external load.
- e. There shall be a minimum clearance of 0.5 meter between the pipeline and any other underground structure not connected with it.
- f. It shall be mandatory for all buried pipelines to be protected against corrosion where any pipeline is to transport corrosive or toxic gas, the following shall be ensured:
 - i. Design parameter shall be such that the gas pressure at any time in the pipeline shall not result in a hoop stress greater than 60 percent of the specified minimum yield strength of the pipeline material based on the nominal wall thickness.
 - ii. Block valves and check valves 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 design, installation and maintenance of the associated corrosion control system of the pipeline shall be in line with section 3.5, in conformance with to the provisions of NACE SP0169-2013 and other internationally recognised standards approved by DPR.

4.2.2 Requirements for Inspection and Testing of Gas Pipelines

- i. Inspection of pipeline construction materials and its appurtenances, welding, ditching, stringing and the general installation shall follow the procedure outlined in chapter IV of the ASME B31.8-2018 and other internationally recognised standards approved by DPR.
- ii. All gas pipelines laid in farmlands, virgin areas and sparingly populated areas shall be tested with water up to a minimum pressure of 125 percent of their maximum operating pressure or with air up to 110 percent of their maximum operating

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pressures. The test result shall be lodged with the nearest office of the Department.

- iii. Pipelines laid in densely populated areas shall be tested ONLY with water up to a minimum of 140 percent of their design maximum operating pressures and the test result shall be lodged with the nearest DPR office.
- iv. Leak test shall however be performed on the pipeline system with the use of pressurized air or gas between 100 PSI to 20 percent of the minimum specified yield of the material for pipelines that has been designed to withstand 20 percent or more of the specified minimum yield strength.
- v. Pipeline to be operated below 100 PSI shall be subjected to a leak test at maximum system pressure.
- vi. Any gas pipeline that will not be put into use for more than six months after construction shall be filled with inert gas or nitrogen and if it is to be put into use after one year of completion shall be pressure tested and certified by an official of Department of Petroleum Resources before being put into use.
- vii. Gas pipeline systems shall be well purged with water, air or inert gas before undertaking any repairs and the environment of the repair site shall be constantly monitored with gas detecting device to ensure adequate safety.

4.3 Gas Pipelines Made with Materials Other Than Ductile Steel

4.3.1 Cast Iron Materials


Cast iron Materials shall be used for gas pipelines under specified application to and with special approval by the Department. Such applications shall be supported with the compelling reasons for using Cast Iron Material. However, the design considerations shall strictly follow the specifications in paragraph 842 of ASME B31.8-2018 and other internationally recognised standards approved by DPR.

4.3.2 Plastic Materials

The use of thermoplastic and thermosetting plastic materials of the grades specified in ASTM D 2513 and ASTM D 2517 shall be generally allowed for laying service lines only.

- i. The design pressure for plastic gas piping system shall be governed by the formula given in reference standard ASME B31.8-2018 where the value of the plastic design factor shall not be less than 0.32 for any case.

- ii. Plastic pipe materials shall not be used in any service where the maximum and minimum operating temperatures shall be higher or lower than 100F and 200F respectively
- iii. Plastic pipe materials to be used shall be inhibited against the effect of Ultraviolet rays which renders such materials brittle when exposed to sun light
- iv. Plastic pipes or tubing shall not be threaded at joints but shall be joined by the solvent cement method, adhesive method, and heat-fusion or by the means of compression coupling or flanging whichever conforms to the manufacturer's specifications.
- v. Extreme caution shall be taken in laying plastic pipelines to avoid any damages to the material. All buried plastic pipelines of ½ inch nominal diameter and above shall have a minimum wall thickness of 0.1 inch while those below ½ inch nominal diameter shall have a wall thickness not less than 0.06 inch.
- vi. Plastic pipes shall be buried in undisturbed or well-compacted soil while no mitre bends shall be permitted at any portion of the pipeline.
- vii. Plastic pipes shall be tested at pressure not less than 150 percent of their maximum operating pressure or 50 PSI whichever is greater and shall not on any occasion be subjected to a pressure more than 300 percent of their maximum operating pressure.
- viii. Certificate of conformity to required specifications shall amongst other items provide information on the following parameters for plastic gas transmission system:
 - A. **Compound**
 - i. Conventional density
 - ii. Volatile content
 - iii. Water content
 - iv. Carbon Black dispersion
 - v. Resistance to gas condensate
 - vi. Resistance to Rapid crack propagation (critical pressure, Pc) ($e \geq 15\text{mm}$)
 - vii. Resistance to slow crack growth (dn: 110mm or 125mm- SDR 11)
 - viii. Tensile strength for butt fusion (dn:110mm or 125mm- SDR 11)

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B. Pipeline

- i. Hydrostatic strength (20 deg centigrade, 100h, 80 deg c, 165h, 80 deg c, 1000h)
- ii. Elongation at break
- iii. Resistance to slow crack growth $e \leq 5$ mm (Cone test)
- iv. Resistance to slow crack growth $e > 5$ mm (Notch test)
- v. Resistance to rapid crack propagation (critical pressure, P_c)
- vi. Oxidation induction time (Thermal stability)
- vii. Melt mass flowrate (MFR)
- viii. Longitudinal reversion

C. Valves

- i. Resistance to weathering
- ii. Leak-tightness of seat and packing
- iii. Actuation mechanism resistance
- iv. Resistance to bending between supports
- v. Thermal cycling resistance $dn > 63$ mm
- vi. Leak-tightness under bending with thermal cycling, $dn \leq 63$ mm
- vii. Leak-tightness under tensile loading
- viii. Leak-tightness under and after bending applied to the operating mechanism

5. FLOWLINE, PIPELINE & RISER SYSTEMS FOR OFFSHORE OPERATIONS


5.1 Basic Statutory Approvals

Basic statutory pipeline approvals applicable to offshore flowline, pipelines and riser systems shall as a minimum be as given in section 3.

5.2 Design Criteria

In addition to the general requirements of Sections 3 & 4 of this guideline, proper design consideration shall be given to establish acceptable / tolerable limits for the design of any Flowline and Riser System in the Nigerian offshore and deep offshore locations. API STD 2RD and API RP1111-2015 shall form the additional basic reference codes / standards for the design of these systems.

Where model studies will be carried out for any of the systems associated with the FLRs, for the purpose of guaranteeing any design / technological procedure, the company shall notify the Department of Petroleum Resources at least four (4) weeks prior to the conduct

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of the exercise. The Department shall have the liberty of nominating officers to witness and endorse the results generated in such model test activity.

6. OPERATION AND MAINTENANCE OF OIL AND GAS PIPELINES.

6.1 Renewal of OPLL

For the renewal of OPLL, a copy of the expiring licence with the relevant attachments (Schedule 1 & 2) and a copy of the most recent pipeline integrity report shall be forwarded alongside the application for renewal of the licence. Renewal of OPLL shall be granted only on the submission and approval of a comprehensive pipeline CEP.

Note: PTS processes in line with Section 2.2 shall apply.

6.2 Renewal of Licence to Operate for Pipelines


Licence to Operate Pipelines shall be renewed annually. For the renewal of LTO, the following shall be forwarded alongside the application:

- a. A copy of the expiring licence.
- b. Evidence of Payment of **\$10,000:00**, made payable to the Department of Petroleum Resources as Licence to Operate fee.
- c. The location of each point at which there is a change in any of the following parameters:
 - i. Outside or nominal diameter of the pipeline.
 - ii. Wall thickness of the line pipe material.
 - iii. Type and Grade of line pipe.
 - iv. Designed maximum operating pressure.
- d. A satisfactory audit exercise and signed-off document.

6.2.1 Annual Audit

A pipeline audit shall be carried out annually for the purpose of establishing compliance by the operator and renewal of the LTO. The Audit shall be carried out by nominated officials of the Department of Petroleum Resources prior renewal of LTO. The objective of the Audit are as follows at the minimum :

- a. Review documentations and equipment/systems of the pipeline to ascertain its integrity and readiness for continued safe operation.

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- b. Ensure that adequate safety, operating, maintenance, and emergency procedures are in place for continued operations.
- c. Ensure that training has been completed for all workers who operate the pipeline.
- d. Review records of all activities pertaining to the operation of the pipeline. The following documentation shall be made available for review on demand:
 - i. Licence to Operate.
 - ii. Emergency procedures & Facility Response Plans.
 - iii. Security Plan.
 - iv. Spill Prevention Control and Countermeasure Plans.
 - v. Operation Manual and SOPs.
 - vi. Training records.
 - vii. Operator Training Reports
 - viii. Copies of Inspections reports carried out.
 - ix. Maintenance Records.
 - x. Approved checklist for the Pipeline.

6.3 Safety and Maintenance of Pipelines during Operations

6.3.1 General

All pipeline operations and repairs shall be carried out in accordance with good pipeline practice and shall be generally undertaken in accordance with the safety provisions contained in the API STD 1104-2013 and API RP1111-2015.

- a. The repaired section of the pipeline shall be pressure tested at expected operating conditions like a new line. Detail report of this exercise shall be submitted to the Department
- b. The operator shall develop a written emergency plan for implementation in the event of systems failures, accidents, and other emergencies, which shall include procedures for prompt and expedient remedial action for the following.
 - i. Safety of the public and operator’s personnel.
 - ii. Protection of property, environment and spillage from the pipeline.
 - iii. Adequate Personnel training for handling such emergencies.

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- c. Care shall be taken to ensure that at no time should the maximum steady state operating pressure and static condition exceed either the internal design pressure or the pressure ratings of components used whichever is less.
- d. Pressure surges or any momentary pressure variations shall not exceed 10 percent of the operating pressure limits.
- e. Pressure Relief Devices shall be inspected and re-certified once in every twenty-four (24) months in the presence of DPR representatives and with the report of such tests lodged with the nearest office of the Department.
- f. All Pressure Relief Devices shall be activated after installation/maintenance to ensure that they function properly.


6.3.2 Pipeline Route

The Pipeline route shall be operated and maintained in compliance with the Oil Pipeline Act and in line with Internationally recognised standards. Additionally, the following shall be carried out at the minimum:

- i. Pipeline markers at crossings shall indicate the location of the line and the name of the operating company.
- ii. The right of way shall be maintained so as to have a clear visibility and give reasonable access to maintenance crews.
- iii. Clear access shall be maintained to valve locations and ditches shall be protected against washout of the line.
- iv. The right of way shall be regularly patrolled/monitored for prompt detection of any line break, encroachment or any other development that may endanger the safety of personnel, environment, and pipeline. Where there is such development, the Operator shall promptly take necessary actions to prevent escalation of hazard and report the development to the DPR within 24 hours.
- v. All under water crossing shall be periodically inspected but not longer than once in two years to ensure that there is sufficient cover for the pipeline and that the safety of the line at crossings is not endangered in any way.

6.3.3 Offshore Pipelines

Offshore Pipelines shall be operated in line with internationally recognised standards. The operator shall ensure that for offshore pipelines connected to platform risers, the riser

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installations shall be visually inspected annually for physical damage or corrosion in the splash zone and above. Records of such inspections shall be kept on site and made available on demand.

6.3.4 Gas Pipelines

The Gas Pipelines shall be operated and maintained in line with internationally recognised standards. Additionally, the following shall apply at the minimum:

- i. Any gas pipeline that will be inactive for more than six months after construction/operation shall be preserved with inert gas or nitrogen.
- ii. Where a pipeline will be inactive for more than one year, such pipeline shall be pressure tested and certified by officials of the Department of Petroleum Resources before being put into use again.
- iii. Gas pipeline systems shall be purged with water, air or inert gas before undertaking any repairs.
- iv. The environment of the repair site for gas pipelines shall be constantly monitored with gas detecting device to ensure adequate safety.


6.3.5 FLR Operation & Maintenance

The approved operation and maintenance schedules shall be appropriately implemented during the operational life span of the FLR systems. Failure to fully implement the approved O&M programs shall become an offence punishable under the applicable Petroleum Regulations and Act.

6.3.6 Monitoring of Cathodic Protection Systems

Cathodic protection facilities shall always be maintained in serviceable condition. The following shall be ensured at the minimum:

- i. Cathodic protection facilities shall be electrically tested and inspected once a year with appropriate corrective measures taken where such inspections reveal any weakness in the system.
- ii. A report of such inspections shall be lodged with the Department at the completion of such exercise.

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- iii. All sources of impressed current rectifiers and other associated devices shall be inspected and tested at quarterly intervals to ensure that they are functioning properly.
- iv. These inspections shall be carried out in the presence of representatives of the Department.

6.3.7 Monitoring of Internal Corrosion


This shall be by the running of intelligent pig or other internal pipeline survey instrument as may be approved by the Department throughout the whole length of the pipeline at least once in five years. This inspection (data gathering) as well as the data interpretation shall be carried out in the presence of representatives of the Department. A report of such inspection shall be lodged with the Department.

6.4 Upgrade of Maximum Operating Pressure of Pipeline

Any Licencee that desire to upgrade the maximum operating pressure of its pipeline shall lodge an application with the Department of Petroleum Resources to that effect giving the following information:

- i. The reason for the desire to operate the system at a lower/higher pressure than its original maximum designed pressure.
- ii. The maintenance/leak/repair history of the pipeline to be upgraded.
- iii. The modification that shall be made to the pipeline system to qualify it for upgrading in accordance with the specifications contained in ASME 31.8-2018
- iv. The test that will be carried out on the pipeline system after upgrading which shall be compatible with the procedure outlined in Section 3.4.1 of this document in which the upgrade maximum operating pressure will now be pressure parameter to use for the tests.
- v. Evidence of payment of **₦ 500,000:00** made payable to the Department of Petroleum Resources as processing fees.

The grant of approval to carry out the upgrading and operate the upgraded pipeline at the new pressure shall be contingent upon satisfactory fulfilment of the conditions listed in above.

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6.5 Change Of Substance Transmitted by The Pipeline

This shall apply to situations when the Licences desire to change the nature of the fluid transmitted by the pipeline in the following manner:

- i. From Liquid Petroleum to Gas
- ii. From sweet Gas to Corrosive Gas
- iii. From Hydrocarbon substance to water etc.

In all such cases, an application for making the change shall be made to the Department of Petroleum Resources giving the following information.


- i. The reason for the change
- ii. The maintenance history of the pipeline in question
- iii. The modifications that shall be made to the pipeline system for it to be capable of rendering the new service.
- iv. Other relevant information that will enable the Department of Petroleum Resources undertakes a realistic assessment of the request for the purpose of approval.

The application shall be accompanied with a payment of **₦ 500,000:00** made payable to the Department of Petroleum Resources as processing fees.

6.6 Accident Reporting

In line with the MOSR and EGASPIN, all accidents related to any pipeline operation shall be reported within 24 hrs to the closest office of the Department of Petroleum Resources and to the Director/CEO of DPR within 48 hrs. Additional information to be supplied shall include:

- i. Pipeline system affected
- ii. Valid OPLL number
- iii. Suspected cause of accident
- iv. Estimated loss associated with the accident
- v. Emergency remediation response effected on discovery
- vi. Plan for the restoration of pipeline operations to its licensed conditions

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7. DECOMMISSIONING AND RESUMPTION OF OPERATION FOR PIPELINE SYSTEMS

7.1 Decommissioning of Operation of Pipeline Systems

The Licencee shall apply to the Department giving three months' notice of its intention to discontinue with the operation of the pipeline system or ancillary facilities. Such applications shall be accompanied with the following:

- i. The reasons for the discontinuation of the operation of the pipeline system
- ii. A plan of the entire pipeline or part thereof in which the operations is to be discontinued shown in green colour.
- iii. The proposed method of discontinuing operations.
- iv. Payment of **₦500,000:00** made payable to the Department of Petroleum Resources as processing fees.

7.1.1 Procedure for Decommissioning of Operations


Apart from the conditions that may be specified when granting discontinuation approval, the pipeline to be discontinued with shall be

- i. Disconnected from all other facilities like other pipelines, meter stations, ancillary facilities and other appurtenances.
- ii. Purged of all Petroleum Liquid or Gas with water or an inert material
- iii. Capped at both ends with moisture resistant materials.

7.2 Abandonment and Removal of Pipelines

Where the Pipeline is to be decommissioned, abandoned and/or removed, the licencee shall engage the Department in an abandonment concept selection workshop. The following shall apply:

- i. All the steps outlined in Section 7.1 above shall be followed in cases where the pipeline is to be completely abandoned.
- ii. The right of way of abandoned pipelines shall continue to be maintained and clearly identified for as long as the pipeline remains in place.
- iii. In cases where the pipeline is to be removed, the Licencee shall furnish the Department with the proposed work programme for its removal. Also, the Licencee shall restore into perfect condition the right of way of the pipeline and other disturbed land areas in the neighbourhood after its removal.

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iv. The provision of EGASPIN and other Guidelines issued by the Department.

7.3 Resumption of Operation on Decommissioned Pipeline

An application shall be made to the Department of Petroleum Resources for approval to resume operations in a mothballed pipeline system. Such applicants shall

- i. State reasons for the resumption of operation and
- ii. The proposed method to be used in reactivating the pipeline.
- iii. All such pipelines shall be tested under the proposed operating conditions of the pipeline after reactivation.

8. NON-COMPLIANCE

These Guidelines provide the requirements for Design, Construction, Operations and Maintenance of Oil and Gas Pipeline Systems in Nigeria.

Non-compliance with the provisions of these Guidelines by any pipeline operator / owner shall be deemed as violations to relevant sections of the Oil pipeline Act, Oil and Gas Pipeline Regulations 1995, Petroleum (Drilling and Production) (Amendment) Regulations 2019. These violations may result in applicable consequence management, including, but not limited to, fines, penalties, suspension, and/or revocation of licence and permits. Appendix 2 summarises penalties prescribed for pipelines violations.

9. APPENDICES

9.1 Appendix 1 - Summary of Fees for Pipeline Licence Process

Table 9-1 Summary of Fees for Pipeline Licence Process

S/N	FEE DESCRIPTION	AMOUNT
1.	PTS Application Fee	NGN 20:00
2.	PTS Grant Fee	NGN 50:00
3.	PTS Processing Fee	NGN 500,000:00
4.	OPLL Application Fee	NGN 50:00
5.	OPLL Grant Fee	NGN 200:00
6.	OPLL Processing Fee	NGN 500,000:00
7.	Transfer of OPLL Processing fee	NGN 500,000:00
8.	OPLL Annual Rental Fee	NGN 20:00/mile



		(NGN 12:50/km) or NGN 200:00 minimum
9.	Licence To Operate Fee	USD 10,000:00
10.	Renewal of Licence To Operate Fee	USD 10,000:00/annum
11.	Conceptual Design/Feed Approval Fee	NGN 500,000:00
12.	Re-Validation of Conceptual Design/Feed Processing Fee	NGN 250,000:00
13.	Detailed Engineering Design Approval Fee	NGN 500,000:00
14.	Commissioning / Approval to Introduce Hydrocarbon Processing Fee	NGN 500,000:00
15.	OPLL Application Fee for a Restriction Order	NGN 100:00
16.	Grant Fee of a Restriction Order	≤ NGN 400:00
17.	Change of Service Processing Fee	NGN 500,000:00
18.	Decommissioning Processing Fee	NGN 500,000:00

9.2 Appendix 2- Summary of Penalties for Non- Compliance

Table 9-2 Summary of Penalties for Non- Compliance

S/N	FINE DESCRIPTION	AMOUNT
1.	Operating Pipeline Without a Valid LTO	USD 250,000:00
2.	Decommissioning a Pipeline Without Approval	USD 250,000:00

In addition to the above fines, non-compliance to the provisions of these guidelines may attract other penalties such as withdrawal or suspension of permits and licences, prosecution and special fines as may be determined by the Department of Petroleum Resources.

9.3 Appendix 3- Summary of Process Time Frames and Responsibilities

Table 9-3 Pipeline Licensing and Approvals Time Frames and Responsibilities

S/No	TASK	Estimated Duration	Responsibility
1.	Preparation and submission of PTS application	Determined by proponent	Proponent
2.	Review of PTS application & issuance of 3 rd party letters to stakeholders	2 weeks	DPR
3.	Issuance of 'No Objection' response by 3 rd party stakeholders	8 weeks	3rd party stakeholder
4.	1 st reminder to 3 rd party stakeholder for issuance of 'No objection' response	4 weeks	3rd party stakeholder
5.	Final reminder to 3 rd party stakeholder for issuance of 'No objection' response	2 weeks	3rd party stakeholder
6.	Issuance of PTS certificate	1 week	DPR
7.	Preparation and submission of OPLL application	Determined by proponent	Proponent
8.	Review of OPLL application & issuance of 3 rd party letters	2 weeks	DPR
9.	Publication in Newspapers	4 weeks	Proponent
10.	Conduct of Public Hearing	6 Weeks from publication date	Proponent
11.	Issuance of 'No Objection' response by 3 rd party stakeholders	8 weeks	3rd party stakeholder
12.	1 st reminder to 3 rd party stakeholder for issuance of 'No objection' response	4 weeks	3rd party stakeholder
13.	Final reminder to 3 rd party stakeholder for issuance of 'No objection' response	2 weeks	3rd party stakeholder
14.	Preparation and submission of Conceptual Design/FEED package	Determined by proponent	Proponent
15.	Review of Conceptual Design/FEED package	6 Weeks	DPR
16.	Preparation and submission of Detailed Engineering Design package	Determined by proponent	Proponent
17.	Review of DED package	6 Weeks	DPR
18.	Issuance of OPLL certificate	1 Week	DPR

19.	Construction of Pipeline	Determined by DPR & proponent	Proponent
20.	Preparation and submission of Pre-commissioning application	Determined by proponent	Proponent
21.	Pre-commissioning Exercise	Determined by proponent	Proponent
22.	Preparation and submission of Commissioning/Approval To Introduce Hydrocarbon application	Determined by proponent	Proponent
23.	Issuance of Approval to Introduce Hydrocarbon	2 weeks	DPR
24.	Preparation and submission of LTO application	Determined by proponent	Proponent
25.	Review & Issuance of LTO	2 Weeks	DPR

9.4 Appendix 4: Statutory Compliance Checklist

Table 9-4 Statutory Compliance Checklist

S/No	Statutory Compliance Plan	DPR Activity
1.	Permit to Survey Pipeline R.O.W.	Inspection of proposed ROW and Permit to Survey. DPR shall seek the consent of 3 rd party agencies (Ministry of Lands, NPA, NIWA, Railway e.t.c. depending on the interference by the proposed pipeline).
2.	Conceptual Design	Participation and Approval
3.	Design Safety Case (Basic)	Approval
4.	Detailed Design	Participation and Approval
5.	Environmental Impact Assessment (EIA)	Approval
6.	Environmental Management Plan (EMP)	Endorsement
7.	Technical, Safety and Engineering Reviews	Participation
8.	Manufacturing Inspection Plan (MIP) / Line Pipe Mill Certification	Witness and endorse In-factory manufacturing QA/QC processes
9.	Factory Acceptance Tests (FAT) / Inspection & Test Plans (ITPS)	Witness and endorse
10.	Pipeline O&M Strategy	Approval & Monitoring
11.	OPLL	Grant of Licence. DPR shall seek the consent of 3 rd party agencies (Ministry of Lands, NPA, NIWA, Railway e.t.c.



		depending on the interference by the proposed pipeline). Public hearing shall also be held during before a licence is granted
12.	Pipeline construction	Monitoring
13.	Pipeline Pre- Commissioning & Commissioning	Approval & Witness
14.	Manufacturing Inspection Plan (MIP) / Line Pipe Mill Certification	Witness and endorse In-factory manufacturing QA/QC processes
15.	Factory Acceptance Tests (FAT) / Inspection & Test Plans (ITPS)	Witness and endorse
16.	Pipeline O&M Strategy	Approval & Monitoring
17.	OPLL	Grant of Licence. DPR shall seek the consent of 3 rd party agencies (Ministry of Lands, NPA, NIWA, Railway e.t.c. depending on the interference by the proposed pipeline). Public hearing shall also be held during before a licence is granted
18.	Pipeline Construction	Monitoring
19.	Pipeline Pre-Commissioning & Commissioning	Approval & Witness


10. GLOSSARY

Abbreviations, terms and references used in this document are explained hereunder

ANSI	American National Standard
ASME-	American Society of Mechanical Engineers
ASTM-	American Society for Testing & Material
BFD	Basis for Design
CEP	Community Engagement Program
DPR	Department of Petroleum Resources
DPR	Director/CEO, Department of Petroleum Resources
DSAW	Double Submerged Arc Welded
EGASPIN	Environmental Guidelines and Standards for Petroleum Industry in Nigeria
EIA	Environmental Impact Assessment
ERW	Electric Resistance Welded
FAT	Factory Acceptance Test
FEED	Front End Engineering Design
FLR	Flowline and Riser



ITP	Inspection Test Plan
LTO	Licence to Operate
MFR	Melt Mass Flow Rate
MOSR	Minerals Oil Safety Regulation
NACE	National Association of Corrosion Engineers
NDR	National Data Repository
NDT	Non-Destructive Test
NPT	National Pipe Thread
OGISP	Oil And Gas Industry Service Permit
O&M	Operation and Maintenance
OPLL	Oil Pipeline Licence
PFS	Process Flow-Scheme
PIA	Preliminary Impact Assessment
P&ID	Piping and Instrumentation Diagram
PQR	Procedure Qualification Record
PTS	Permit to Survey
ROW	Right of Way
SAT	Site Acceptance Test
SME	Subject Matter Experts
SDR	Standard Dimension Ratio
SOW	Scope of Work
TSC	Technical Safety Control
WPS	Welding Procedure Specification

Approved by	
<p>Engr. Sarki Auwalu <i>FNSE, FNSCHE</i> (Director/CEO, Department of Petroleum Resources)</p>	
	<p>Date 14th October 2021</p>