

NGN/PM/SLO/1

Management Procedure for Self-Lay Projects with Operating Pressure >7 Barg

July 2023

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Foreword

This document was approved by the appropriate Technical Authority Level (TAL) and Standards Steering Group (SSG) for use throughout Northern Gas Networks Limited (NGN).

NGN documents are revised, when necessary, by the issue of new editions. Users should ensure that they are in possession of the latest edition by referring to the NGN Register of Documents available on NGN intranet.

Compliance with this document does not confer immunity from prosecution for breach of statutory or other legal obligations.

Contractors and other users external to NGN should direct their requests for further copies of NGN documents to the department or group responsible for the initial issue of their contract documentation.

Disclaimer

This safety and engineering document is provided for use by NGN and such of its contractors as are obliged by the terms and conditions of their contracts to comply with this document. Where this document is used by any other party it is the responsibility of that party to ensure that this document is correctly applied.

Brief History

First Published as NGN/PM/SLO/1	November 2017	NGN/PM/SLO/1 Version 1.0
Revised following comments minor updates to sections 1, 4, 5, 6, 7, 10, 12, 14, 15 and Appendices C, D, H and I.	July 2018	Version 2.0
Revised to include the requirements of NGN/PM/BIO/1 for biomethane connections and update of the references	May 2023	Version 3.0

Mandatory and non-mandatory requirements

In this document:

Must: Indicates a mandatory requirement

Should: Indicates best practice and is the preferred option. If an alternative method is used then a suitable and sufficient risk assessment must be completed to show that the alternative method delivers the same, or better, level of protection.

Approval

Technical Authority Level:	Kristina Brazenaite	05 th July 2023
Standards Steering Group:		14 th July 2023

Key Changes

Section	Amendments
Appendix A	Updated references
Appendix F	To confirm the technical requirements for the Technical Authority of BIO/1
Appendix H	To confirm the technical requirements for the Technical Authority of BIO/1

Management Procedure for Self-Lay Projects with Operating Pressure >7 Barg

1. Introduction

This procedure describes the arrangements for managing Self-Lay projects with operating pressure greater than 7 barg where Northern Gas Networks (NGN) have been asked to take ownership of the assets following construction in accordance with Licence Condition 4b.

The procedure has been produced to ensure the Developer and its nominated Self-Lay Organisation (SLO) understands the process required to follow if they wish the pipeline be adopted by NGN.

It is a structured process and defines the requirements the Developer / SLO needs to demonstrate at each stage of the project.

It provides an audit framework which will be used by NGN to confirm the requirements have been achieved before moving towards the next phase of the project. The audits will be carried out by NGN personnel or a nominated service provider against the information prepared and checked by a competent person for the SLO.

The SLO shall have its own management system for the project and arrangements for auditing to demonstrate compliance against all statutory requirements and NGN standards.

- Stage 1 – Notification by Developer of intention to construct assets to be adopted by NGN
- Stage 2 – Feasibility and Environmental Study
- Stage 3 – Conceptual Design – (to be agreed with the Network at application stage)
- Stage 4 – Detailed Design
- Stage 5 – Procurement and Construction
- Stage 6 – Testing and Pre-Commissioning
- Stage 7 – Commissioning and Operation Acceptance
- Stage 8 – Asset Adoption .

The asset shall only be fully adopted by NGN on successful completion of all phases of the project.

2. Scope

This procedure applies to all Self-lay projects with operating pressure greater than 7 barg where NGN have been asked to take ownership of the assets.

The procedure does not replace the network connection agreements and processes for managing new connections to the NGN such as the Bio-gas connections process.

The audit framework has been developed for steel pipelines in accordance with the current version of IGEN/ TD/1 (Edition 6).

This procedure should be applied as early as practicable to the project prior to the feasibility study when NGN are notified by an SLO they wish NGN to take ownership of the asset following construction.

Where the project has commenced beyond the conceptual design phase then the project shall be considered by NGN to be too far advanced for NGN to take ownership (i.e. if the environmental study, design, procurement or construction activities have started then NGN shall not be able to adopt the assets).

3. References and Responsibilities

This procedure makes references to the documents listed in Appendix A. Unless otherwise specified, the latest edition of the documents apply, including all amendments. It is the responsibility of the SLO to ensure the latest versions of all procedures, specifications and standards are applied.

In addition, the list of documents in Appendix A is not intended to be exhaustive and the list of standards applicable to the works shall be agreed at the start of the project with NGN.

The SLO will be given access to the NGN Standards Library so they can obtain the current version of the documents.

Definitions applying to this procedure are listed in Appendix B.

4. General Requirements

Taking ownership of self-lay pipelines shall not impose additional costs, risks or liabilities above those that would have been incurred had NGN constructed the pipeline. The SLO will be required to demonstrate the design is the least whole life cost solution. This should be achieved by ensuring the self-lay pipelines are designed and constructed to NGN standards. For any biomethane connections, the SLO will be required to demonstrate that all requirements of NGN/PM/BIO/1 are met.

Before taking ownership of a self-lay pipeline, NGN shall be satisfied that accepting the pipeline does not adversely affect the integrity and safety of the existing network.

The following process and project control form shall be used to manage the adoption process. The control form will be updated as the project progresses.

To ensure compliance with these requirements, NGN shall audit self-lay projects at key stages during the project. The audits shall confirm compatibility of the new pipelines with the existing NGN gas supply network and provide assurance that the system is developed in an efficient, economical, safe and consistent manner.

Audits shall be carried out by qualified auditors possessing evidence of suitable industry recognised qualification. The SLO nominated competent person will be required to check and confirm the information is correct before submitting the information for review by the auditors. This will ensure the audit and sign off process is carried efficiently and avoid project delays.

5. Roles and Responsibilities

The Developer is responsible for initiating the process by informing NGN they propose constructing a >7 barg asset and intend the asset to be adopted by NGN. The Developer shall inform NGN of their appointed SLO who will manage the project on their behalf.

NGN shall issue the Developer/SLO with a project control form which will be used to track the responsibilities of key individuals as the project progress through each stage.

The SLO shall ensure the individuals appointed to the roles identified in the Project Control Form (Appendix C) are competent for the role. The SLO Competent Person shall be a Chartered Engineer with experience in the design and construction of high pressure gas pipelines in the UK. As the User prior to commissioning, the SLO shall be responsible for the production of the WSoE, with NGN accepting User responsibility following operational acceptance prior to commissioning.

The SLO shall have its own quality assurance and performance management systems in place which should audit the project on a routine basis.

The SLO shall be responsible for informing NGN of the project progress and informing NGN when they are ready for a stage to be audited. Prior to submitting the information to NGN Auditors, the SLO nominated Competent Person shall check and confirm the information is correct and ready for review.

The NGN adoption audits DO NOT replace the SLO quality assurance, audit and review activities which are required to be undertaken by SLOs.

The SLO shall allow sufficient time (minimum 10 working days) within the overall project plan for NGN auditors to carry out a review of all the data records and information at each stage of the project. If the information provided is insufficient or unsuitable then the NGN Auditors should contact the SLO as soon as possible and the 10 working days will recommence once the pack of information is resubmitted by the SLO.

The SLO shall not start the next stage of the project until they have received confirmation the previous stage has been accepted, this is particularly important when moving from detailed design stage to procurement and construction stage.

On confirmation of the connection point NGN shall arrange for and manage the live connection to the existing local transmission system. NGN will however work with the SLO to identify what supporting activities can be undertaken by the SLO to facilitate the live connection. The SLO shall allow a minimum of 6 months for this work to be completed.

NGN acceptance of the self-lay pipeline for the transfer of ownership shall be subject to a satisfactory review of information at each of the audits.

During the construction phase of the project, the SLO shall appoint qualified BGAS pipeline inspectors, to inspect and audit the construction work.

NGN shall require unrestricted access to the site works during the procurement and construction stage and will carry out unannounced audits in accordance with Appendix G. These should usually consist of a minimum of two visits to the project per month, however these may be increase if required.

6. Pipelines Safety Regulations (PSR) Responsibilities, Including Notifications

The SLO is responsible for complying with all aspects of the Pipelines Safety Regulations until the assets are ready to be commissioned and adopted by NGN.

The SLO is responsible for notifying the HSE as detailed below;

- The SLO shall notify the HSE, 6 months prior to construction of the pipeline in accordance with PSR Regulation 20 – “The operator shall ensure that the construction of a major accident hazard pipeline is not commenced unless he has notified to the Executive the particulars specified in Schedule 4 at least 6 months, or such shorter time as the Executive may approve, before such commencement.” At this stage, the SLO will be recorded operator of the pipeline, however the SLO may inform the HSE of the intention for the pipeline to be adopted by NGN in the future.
- The SLO shall notify the HSE prior to use of the pipeline, Regulation 21 - “The operator shall ensure that no fluid is conveyed in a major accident hazard pipeline, or conveyed following a period in which it has been out of commission (other than for routine maintenance), until the expiration of 14 days, or of such shorter period as the Executive may in that case approve, from the receipt by it of a notification of the date on which it is intended to convey, as the case may be, resume the conveyance of fluid in the pipeline.” At this stage the HSE shall be informed that NGN will be the operator of the pipeline.

When NGN is satisfied all stages have been completed to a satisfactory position and it is able to become the operator of the pipeline following operational acceptance, NGN shall inform the SLO of the intention to become the Operator and notify the HSE in accordance with Regulation 22 - “Where there is a change of operator of a major accident hazard pipeline, or of his address, the operator shall notify any such change to the Executive within 14 days thereafter.”

7. Pressure System Regulations (PSSR) Responsibilities

The SLO is responsible for compliance with Pressure System Safety Regulations (PSSR). The SLO shall act as “User” and appoint a Competent Person to ensure the PSSR requirements are achieved and a written scheme is prepared for the new assets prior to commissioning.

When NGN is satisfied it is able to commission the assets then it will become the User and appoint its own Competent Person and will assume User responsibilities following operational acceptance.

8. Construction Design Management (CDM) Regulation Responsibilities

The SLO is responsible for compliance with the CDM Regulations and will act as Client for the project and appoint the Principal Designer and Principal Contractor. The SLO is responsible for notifying the HSE in accordance with Regulation 6.

9. Planning, Land Acquisition, Wayleaves and Easements

The SLO is responsible for planning and acquiring access to land to construct, operate and maintain the pipeline.

Liabilities may arise from the agreements entered into by the SLO, including loss of development compensation or access restrictions. To avoid future liability issues the SLO shall conduct negotiations in accordance with NGN property process and use a with Tripartite Grant format provide by NGN.

On completion of the planning and land acquisition process the SLO shall share the Tripartite Grant agreements with NGN.

It is essential that NGN accept the agreements as negotiated. If the agreements are considered to place unacceptable future risks on NGN, then the assets shall not be adopted by NGN.

10. NGN/PM/G/17 Management Procedure for Managing New Works, Modifications and Repairs

The SLO is responsible for ensuring the design of the pipeline and associated assets is carried out in compliance with NGN/PM/G/17.

The SLO shall nominate a competent NGN trained G17 Initiator who will be responsible throughout the project for ensuring the work is carried out as per NGN/PM/G17.

The design shall be subject to an independent appraisal by competent designers, who are registered on the NGN design appraisers list.

The SLO shall ensure the design appraisers appraise the design against the current NGN specifications.

11. Compliance with NGN Specification and Deviation Requests

The SLO shall work towards meeting all the requirements of the NGN specifications, however, where the SLO identifies a need to request a deviation then it shall contact NGN without delay and request the deviation in accordance with NGN deviation procedure NGN/PM/GR2. The SLO shall submit all relevant information to support the deviation including risk assessment.

12. Connection to Network/Live Working

The connection to the network will be managed by NGN in accordance with NGN standards. The SLO shall allow 6 months for this work to be carried out.

The connecting point between the SLO newly constructed pipeline and the NGN connection shall be agreed 6 months prior to starting work and will normally take the form of a flanged connection. NGN will however work with the SLO to identify what live connection activities could be carried out by the SLO.

13. Stage Gate Acceptance Process

The process shall commence when the Developer informs NGN they intend to construct a pipeline which they intend that NGN adopt following construction and commissioning. The Developer shall inform NGN of their intention in writing and detail their nominated SLO by completing form Self-Lay Project Control Form (Appendix C), this will normally occur when the Developer applies to secure a connection point agreement prior to requesting detailed design study. The Developer shall be responsible for ensuring the SLO meets all the requirements of the process.

On the completion of each stage of the project the SLO shall submit information to demonstrate all activities have been completed and they are in a position to move to next stage. The SLO nominated competent person shall review the information and sign the appropriate stage form prior to submitting to NGN auditors.

NGN shall audit the information provided by the SLO and, if satisfied the stage has been completed, will return a signed copy of the Stage completion form (a minimum of 10 working days shall be allowed for this activity).

If further work is required then NGN may still accept the stage is sufficiently complete and issue an outstanding work form detailing additional work which shall be completed by agreed target date. The SLO shall then provide evidence to NGN that the additional work is completed.

If the NGN audit deems the information provided is insufficient to accept the stage has been completed then a further work notice will be issued to the SLO and an additional 10 working days will then be required to review any further information submitted for that stage.

NGN reserve the right to audit the SLO design and construction at any stage throughout the project to ensure compliance with NGN standards and process.

The key requirements the SLO must present for each stage gate audit are detailed in the following Appendices:

- APPENDIX D: STAGE 2 – Feasibility and Environmental Statement
- APPENDIX E: STAGE 3 – Conceptual Design
- APPENDIX F: STAGE 4 – Detailed Concept
- APPENDIX G: STAGE 5 – Procurement and Construction
- APPENDIX H: STAGE 6 - Testing & Pre-Commissioning
- APPENDIX I: STAGE 7 – Commissioning & Operational Acceptance
- APPENDIX J: STAGE 8 – Asset Adoption

Following submission of the information detailed in the relevant Appendix for that stage, the NGN nominated auditor will review the information and report their findings.

Note: throughout Stage 5 Procurement and Construction phase NGN will carry a number of audits to monitor the progression of the work (normally a minimum of two visits per month). Following each of these visits an Audit report will be issued to the SLO detailing any remedial work required.

14. Commission and Operational Acceptance Stage

Following the successful completion of Stages 1 to 6 the pipeline and assets are ready to be connected to the network and commissioned to gas. NGN will become the pipeline operator the terms and conditions of the SLO agreement will determine the SLO post commissioning liabilities.

15. Asset Adoption Stage

On successful commissioning and operational acceptance, the SLO has maximum of 12 weeks to ensure all work is completed on site and the land acquired for the pipeline / assets has been formally transferred to NGN.

The SLO shall ensure all outstanding records are collated and transferred to the NGN records team to allow them sufficient time to enter the information on to the electronic systems (minimum 4 weeks).

Following submission of all project records in accordance with Appendix I, the NGN representative shall audit the information and report findings.

If the audit confirms all requirements have been met then NGN shall accept the pipeline and assets and issue an Asset Acceptance Certificate to the SLO.

If the audit identifies additional work is required, then a further work form notice shall be issued. The terms and conditions of the SLO agreement will determine the SLO post commissioning liabilities.

If the SLO is unable to fulfil all the requirements or chooses to use another company to operate and maintain the pipeline and the assets, then the SLO shall inform the HSE of the change of pipeline operator in accordance with Regulation 21 of PSR.

APPENDIX A

References

Appendix A provides a list of references which should be considered, unless otherwise specified, the latest edition of the documents apply, including all amendments. This list of documents is not intended to be exhaustive and the list of standards applicable to the works shall be agreed at the start of the project with NGN.

It is the responsibility of the SLO to ensure the latest versions of all procedures, specifications and standards are applied.

Industry Standards

IGEM/TD1 Edition 6:	Steel pipelines for high pressure gas transmission
IGEM/TD/1 Edition 5 Supplement 1:	Handling, transport and storage of steel pipe, bends and fittings
IGEM/TD/2 Edition 2:	Assessing the risks from high pressure Natural Gas pipelines
IGE/TD/12 Edition 3:	Pipework stress analysis for gas industry plant
GIS/DAT/6: for	Standard sizes of carbon and carbon manganese steel pipe operating pressures greater than 7 bar
GIS/C/9:	Carbon steel castings
GIS/CW/2:	Performance tests for the supply of cold applied wrapping tapes and tape systems
GIS/CW/5:	Field applied external coatings for buried pipework and systems
GIS/CW/6:	The external protection of steel line pipe and fittings using fusion bonded powder and other coating systems
GIS/CW/9:	Concrete coating of pipes.
GIS/F/6: for	Carbon and carbon steel manganese steel pipe pups operating pressures greater than 7 bar
GIS/P/16:	The dimensions and applications of standard weld end preparations for steel pipe, fittings and valve
GIS/PA/10:	New and Maintenance Painting at Works and Sites for Above Ground Pipeline Installations
GIS/VA/1:	Fluid powered actuators for two positions (open/closed) quarter turn valves.

GIS/VA/2:
(open/closed) Electrical powered actuators for two positions
quarter turn valves.

Northern Gas Networks - Management Procedures

NGN/PM/BIO/1: Functional	Biomethane Network Entry Facility General Requirements
NGN/PM/G/17:	New Works, Modifications and Repairs Management
NGN/PM/GR/2:	The Control of HS&E and Engineering Documents
NGN/PM/ECP/2:	Cathodic Protection of Buried Steel Systems
NGN/PM/EL/2: Explosive	Certification of Electrical Apparatus for Potentially Atmospheres
NGN/PM/EL/3:	The selection, protection, maintenance and operation of electrically operated portable and transport
NGN/PM/EL/4:	Inspection and testing of fixed electrical equipment and systems
NGN/PM/EL/5:	Electrical Cables - Installation
NGN/PM/INS/9: functions for	Functional Safety, Specifying and achieving safety safety
NGN/PM/OLI/1:	On Line Inspection of Steel Pipes
NGN/PM/OLI/2: pipelines	On line pigging operations on gas transmission
NGN/PM/RE/12: documents	Process checklists in support of re-suite of
NGN/PM/RE/2: RE1	The capture of plant and equipment records in support of
NGN/PM/RE/3:	Engineering Drawing Records
NGN/PM/RE/7:	Network pipe records
NGN/PM/RE/9: NGN	Instrumentation and Electrical Records associated with plant
NGN/PM/SCO/1:	Safe Control of Operations
NGN/PM/SCO/2:	Safe Control of Operations - Issue of Permits
NGN/PM/SCO/4:	Safe Control of Operations - Non Routine Operations
NGN/PM/SSW/22:	Safe Working in the vicinity of HP Pipelines and assoc Installations-requirements for 3rd Parties

NGN/PM/TR/17: Isolation of above 2 bar plant and equipment

Northern Gas Networks Specifications

NGNSP/L3:	Specification for Procurement of Steel Pipe
NGN/SP/CE/9:	The design, construction and testing of civil and structural works. Security Fencing.
NGN/SP/B/12:	Steel bends, tees, reducers and end caps for operating pressures greater than 7bar
NGN/SP/CE/1:	The design, construction and testing of civil and structural works. General
NGN/SP/CE/13: structural finishes	The design, construction and testing of civil and works (part 13): Landscaping and site
NGN/SP/CM/1: steel	Technical specification for internal coating operations for line pipe and fittings
NGN/SP/CM/2 Supp: to	Scheme of approval and testing of internal coating materials CM2
NGN/SP/CM/2: steel	Technical specification for internal coating materials for line pipe and fittings
NGN/SP/COMP/2:	Installation of surface mounting temperature sensors
NGN/SP/CW/10:	Register for qualified coatings
NGN/SP/E/28:	The Design of Pressure Regulating Installations with inlet pressures not exceeding 100 bar
NGN/SP/E/33:	The procurement of pressure regulating modules with inlet pressures above 7 bar and not exceeding 49
NGN/SP/E/55: bar.	Bolting, jointing, threading and fasteners for pressures >7
NGN/SP/E/56:	Ancillary pipeline equipment for pig traps, insulation joints, test ends etc.
NGN/SP/EL/13:	Earthing
NGN/SP/EL/17:	Batteries, UPS & Charging systems
NGN/SP/EL/23:	Cable and Equipment Marking - Electrical

NGN/SP/EL/24: Installation	Specification for Standard Electrical Design and requirements
NGN/SP/F/1: bar	Carbon and carbon manganese steel forgings and forged components for operating pressures greater than 7
NGN/SP/G/27: tracks	Installing gas pipes adjacent to and across network rail
NGN/SP/GM1:	The protection of pipelines from ground movement and external loading. External loading on steel pip
NGN/SP/INE/3:	Telemetered Signals
NGN/SP/LUP/1: high pressure	The new HSE land use planning requirements for pipelines
NGN/SP/MPQ/1: to	Manufacturing procedure qualification of steel pipe 48.6mm 1219mm inclusive outside diameter for
NGN/SP/MPQ/2:	Manufacturing procedure qualification of steel bends, tees, reducers and end caps to specification
NGN/SP/NDT/2: construction and	Non-destructive testing of welding joints on fabrication projects.
NGN/SP/P/10:	General pipelining designed to operate at pressures greater than 7 bar
NGN/SP/P/2: operate	Welding of land pipelines and installations designed to at pressures greater than 7 bar
NGN/SP/P/5:	Welding and Inspection of Austenitic Steel Pipework
NGN/SP/P/8:	Specification for Welding of Steel Onshore Natural Gas Installations designed to operate at pressures greater than 7 bar
NGN/SP/P/9: pressure	The welding of fittings to pipelines operating under (supplementary to BS 6990)
NGN/SP/PV/3:	Pressure Vessels
NGN/SP/PW/11: 7 bar.	Pipework systems operating at pressures exceeding 7 bar.
NGN/SP/PW/6 Pt1:	Auxiliary services pipework. Part 1 - General services using carbon steel pipework.
NGN/SP/SHE/75:	Environmental impact assessment

NGN/SP/SS/01: Facilities	Site Signage For Gas Installations, AGI's and Storage
NGN/SP/TIN/26: fracture in	Materials and impact requirements to avoid brittle pipework at temperatures down to -50
NGN/SP/TR/18: at above	Engineering of pipelines and installations operating 7bar
NGN/SP/TR/21: operating at	Feasibility studies of pipelines and installations above 7bar
NGN/SP/TR/22: installations	Environmental statement for pipelines and operating above 7bar
NGN/SP/TR/23: operating at	Conceptual design of pipelines and installations above 7 bar
NGN/SP/TR/24: operating at above	Detail design of pipelines and installations 7bar
NGN/SP/TR/25: at above 7	Construction of pipelines and installations operating bar
NGN/SP/V/13:	Plug and ball valves (supplementary to ISO 14313)
NGN/SP/V/6 Part1 Supplement: operating	Steel Valves for use with Natural Gas at normal pressures above 7bar
NGN/SP/V/6 Part1:	Steel Valves for use with Natural Gas at normal operating pressures above 7bar
NGN/SP/V/6 Part2:	Steel Valves for use with Natural Gas at normal operating pressures above 7bar
NGN/SP/V/8:	Valves (25mm nominal size and below) for instrumentation and control purposes.
NGN/SP/VENT/1:	Procurement of weatherproof vent caps for use at pressures up to 100 bar gauge.

APPENDIX B

Definitions

Developer:	Client organisation requesting connection to the NGN network may also be referred to as Producer or Delivery Facility Operator (DFO).
SLO:	Self- Lay Organisation, appointed by the Developer to manage the design and construction of the pipeline
NGN:	Northern Gas Networks
PSR:	Pipelines Safety Regulations
PSSR:	Pressure System Safety Regulations

APPENDIX C

Stage 1 – Self-Lay Project Control Form

NGN Project Control Form for Self-Lay Project Operating Pressure > 7 barg (To be updated following each stage)		
Project Title >		
Developer >		
Developer as Client for the project I nominate the following organisation to act as my agent for the design and construction of the gas pipeline and associated assets.		
Developer Print Name>	Sign>	Date>
Self-Lay Organisation >		
Stage>	Stage Start Date >	Target Project Comp Date>
Role	Print Name>	Organisation>
SLO Project Manager		
SLO Initiator as per NGNPMG17		
SLO Competent Person - CEng		
SLO Principal Designer (CDM)		
SLO Principal Contractor (CDM)		
BGAS Qualified Inspectors		
SLO PSSR Competent Person		
SLO Design Appraiser (Civil)		
SLO Design Appraiser (Mechanical)		
SLO Design Appraiser (Electrical)		
SLO Design Appraiser (Instrumentation)		
SLO Design Appraiser (Cathodic Protection)		
NGN Project Liaison		
NGN Asset Owner		

APPENDIX D

Stage 2 Feasibility & Environmental Statement

Project Name			Date
SLO -			
SLO Project Manager (Print)>		Signed>	
Ref	Detail	SLO Competent Person Signature	NGN Audit Findings
1.	Production of a preliminary high-level outline project programme. Time estimates (construction, material lead, land rights purchase).		
2.	Identification of possible pipeline connection and termination points. Definition of an area of search to be considered for sites and pipeline routes.		
3.	Review of published information regarding the natural, physical and built environment, and the identification of possible constraints to pipeline route options.		
4.	Identification of sources of information to assist with the development of route corridor options, such as Local Authorities, etc.		
5.	Identification and assessment of potential route corridor options.		
6.	Production of a Route Corridor Investigation or Level 1 Routing Study Report including constraints maps identifying the possible routing constraints and possible route corridor options. For minor works routing corridor investigation should be agreed with NGN at start of the project.		
7.	Appointment of a Principal Designer (CDM) Reg. 6.		
8.	Production of basic Engineering Line Diagrams (ELDs) and outline General Arrangement (GA) drawings for the facilities/installations required.		
9.	Compliance with the selected design code requirements (e.g. IGEM/TD/1 etc.) and NGN standards.		
10.	Environmental Statement: Where the SLO obtains either a determination from the Secretary State for Business Energy and Industrial Strategy (BEIS) or a		

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NGN Auditor Signed >		Date
NGN Asset Owner Print >		
	<p>The requirements of Stage 2 have been achieved / not been achieved:</p> <p>The project may / may not progress to next stage /</p> <p>with the outstanding actions listed above to be completed by ></p>	
NGN Asset Owner Signed>		Date

APPENDIX E

Stage 3 – Conceptual Design

Project Name			Date
SLO -			
SLO Project Manager (Print)>		Signed>	
Ref	Detail	SLO Competent Person Signature	Findings
1.	NGN/PM/G17 Procedure completed to part A. All Deviation requests appraised and approved		
2.	Outline Project Plan - A project plan (eg Gantt chart) shall be made available, developed in sufficient detail to identify the major elements, typical lead times etc.		
3.	Pipeline Route - This section shall have updated the feasible pipeline route corridors (where applicable), including environmental considerations.		
4.	The Conceptual Design report should detail the essential elements and options available and reduce them to just one for Detailed Design. The rationale behind the preferred option should be detailed with the factors that may limit the scope of the project and any anticipated difficulties evaluated.		
5.	Engineering Line Diagrams and General Arrangements for the installations showing the relative size and position of pipework, plant and equipment for the options considered shall be made available. All drawings shall clearly show the relationship between new and existing plant, equipment and pipework, and identify any modifications necessary with the required level of detail. On pipeline projects, this shall include outline details of connecting the start and finish points of the proposed pipeline into existing or future pressure systems or supply points and identify the land required. 1:10,000 scale OS maps shall be provided to show the preferred route corridor and preliminary pipeline route.		

	The route is developed further and indicated on 1:2,500 scale mapping for discussions with landowners or occupiers etc.		
6.	Confirmation of compatibility with the existing NGN pipeline system and identification of factors that may affect NGN future operation and maintenance.		
7.	Process criteria and design parameters, e.g. flows, pressures, temperatures, demand ramp rates etc. Mechanical design, including compliance with relevant legislative requirements, design philosophy, standards used, site layout details and pipeline connection arrangements, etc. Study of transient or dynamic and physical aspects of the supply and its interaction with the downstream system.		
8.	Materials, including material schedules, including pipe material grades and wall thickness proposed for the pipeline, plant and equipment that is required for any above ground installations, e.g. pig traps, intermediate block valve installations, pressure reduction facilities etc.		
9.	Civil engineering requirements, including foundations, earthworks, ground conditions, fencing, etc.		
10.	Electrical, instrumentation and control equipment including, where applicable, metering.		
11.	Corrosion protection requirements		
12.	Testing, Pigging and Inspection methodology		
13.	Confirmation that the least whole life cost assessment has been completed and the least cost solution selected.		
SLO Competent Person has reviewed material to check it meets the requirements before submitting to NGN Auditors – <div style="display: flex; justify-content: space-between;"> Signed > Date> </div>			
NGN Audit			
	NGN – Auditor (Print)>		
	The information supplied by SLO has been audited and found to be acceptable / unacceptable The findings are detailed in column 4 above;		

	Outstanding actions which must be completed are listed below.
NGN Auditor Signed >	Date
NGN Asset Owner Print >	
	<p>The requirements of Stage 3 have been achieved / not been achieved:</p> <p>The project may / may not progress to next stage / with the outstanding actions listed above to be completed by ></p>
NGN Asset Owner Signed>	Date

APPENDIX F

Stage 4 Detailed Design

Project Name		Date	
SLO -			
SLO Project Manager (Print)>		Signed>	
Ref	Detail	SLO Competent Person Signature	Findings
1.	Design / Technical Information including: a. Design parameters (e.g. flow rates, design and operating pressures, temperatures, test pressures, ramp up rates etc.). b. Operating and control philosophy. c. Study of transient condition during ramp up, load rejection, equipment failure, etc.		
2.	Mechanical design for all equipment, e.g. 1. The pipeline and connecting arrangements. 2. Block valve installation. 3. Pig traps. 4. Process equipment where applicable: filters, meters, preheaters, pressure control including set points. 5. Over pressure protection, including set points. 6. Pipework, including valves. 7. Pipework and equipment support arrangement.		
3.	A design risk register in accordance with the CDM Regulations shall be provided as it is a key part of the design documentation.		
4.	HAZID study and Hazard Operability (HAZOP) Study Report for the formal systematic, critical examination to qualitatively assess the potential hazard from malfunction or maloperation of equipment and its consequential effects with solutions for the proposed pipeline and the downstream systems. The Hazard and Operability (HAZOP) Study Report for the downstream		

	systems will be provided to NGN as the owner of the downstream system owner.		
5.	Stress Analysis Report A full stress analysis report shall be provided.		
6.	Material Schedules / Take-Offs (MTOs) - All materials, fittings, pipework and equipment which are to be selected shall be identified with size, grade and specification or code, to demonstrate compatibility with the existing NGN network.		
7.	Pipeline Route Maps - Strip maps of the appropriate size and scale shall be provided showing the pipeline route.		
8.	Hazardous Area Drawings - Hazardous area classification drawings shall be provided to enable the correct selection and siting of electrical equipment.		
9.	Corrosion protection system, including the design, selection, installation, operation and maintenance of: 1. Internal coating. 2. External coating. 3. Cathodic protection systems.		
10.	Telemetry, including signalling requirements between the third party and NGN systems.		
11.	Instrumentation, including control and auxiliary pipework.		
12.	Electrical and instrumentation design, including details of: Supply (including standby), Isolation, Earthing and Cabling		
13.	Ground conditions, foundations, earthworks, roads, concrete, drainage, ducting, fencing, buildings, housing, kiosks, etc.		
14.	Finalising land and wayleave tripartite agreements in accordance with NGN process.		
15.	Finalising appropriate consents and approval for the design and construction method statements to be used from relevant authorities for special crossings, e.g. Railtrack, Environment Agency, etc.		
16.	Finalising the pipeline route and production of appropriate strip maps		

	with landowner, tenant and occupier details.		
17.	Production of suitably detailed construction drawings for special pipeline crossings such as roads, railways and rivers, etc.		
18.	Notifications to HSE required under e.g. Pipelines Safety Regulations.		
19.	Notification to HSE under CDM Regulations		
20.	Testing and Inspection plans including details of; Hydrostatic Pressure Testing, Weld Inspection, gauge pigging and In-Line-Inspection.		
21	<p>NGN/PM/G/17 Procedure completed to part B.</p> <p>Design Appraisal completed against NGN standards in accordance with the procedure.</p> <p>Any Deviation requests appraised and approved.</p>		
22	The Technical Authority for the BIO1 management procedure has been consulted to check that all design requirements (if applicable) have been met.		
<p>SLO Competent Person has reviewed the data and information to check it meets the requirements before submitting to NGN Auditors –</p> <p>Signed > _____ Date> _____</p>			
NGN Audit			
	NGN – Auditor (Print)>		
	<p>The information supplied by SLO has been audited and found to be acceptable / unacceptable</p> <p>The findings are detailed in column 4 above;</p> <p>Outstanding actions which must be completed are listed below.</p>		

NGN Auditor Signed >	Date
NGN Asset Owner Print >	
	<p>The requirements of Stage 4 has been achieved / not been achieved:</p> <p>The project may / may not progress to next stage /</p> <p>with the outstanding actions listed above to be completed by ></p>
NGN Asset Owner Signed>	Date

APPENDIX G

Stage 5 Procurement and Construction

Project Name			Date
SLO -			
SLO Project Manager (Print)>		Signed>	
Ref	Detail	SLO Competent Person Signature	Findings
1.	<p>SLO shall provide details of project quality plan identifying the following as a minimum:</p> <p>a) Project scope and objectives (legislative, technical safety, asset integrity, quality).</p> <p>b) Controls, processes, resources and skills needed to achieve the required quality.</p> <p>c) Plant, equipment, and materials to be procured and from whom.</p> <p>d) Project management roles and responsibilities for supervision, procurement, inspection, monitoring and auditing.</p> <p>e) Verification of procurement, construction, installation and testing.</p> <p>f) Management system for identification and resolution of non-conformances.</p> <p>g) All relevant specifications, standards, codes of practice, statutory requirements in order to achieve compatibility with the existing NGN system.</p> <p>h) Systems to monitor materials traceability.</p> <p>i) Identification of records to be maintained.</p> <p>j) Quality assurance services to be procured from a competent independent third party.</p> <p>k) Quality assurance programme including planning, inspection, method statements, auditing, traceability of construction material, material certification, records, etc.</p>		

	<p>l) Activities comply with the Environmental Management Plan.</p> <p>m) The project management structure is identified with assigned roles and responsibilities.</p>		
2.	<p>SLO shall demonstrate they have a quality assurance system to ensure that construction activities deliver assets which are compatible with the existing NGN network.</p> <p>The SLO shall carry out audits of the following construction activities:</p> <p>a) Materials traceability.</p> <p>b) Welding and non-destructive testing (NDT) processes.</p> <p>c) Coating - external and internal corrosion protection</p> <p>d. Reinstatement.</p>		
3.	<p>Construction Method Statements</p> <p>The SLO shall ensure Construction Method Statements are available for all activities determined by the construction method and shall include, but not be limited to, the following:</p> <p>a) Location (and protection) of third party services.</p> <p>b) Land drainage (pre-and post construction).</p> <p>c) Topsoil stripping.</p> <p>d) Materials delivery, handling and storage.</p> <p>e) Pipe bending.</p> <p>f) Welding.</p> <p>g) Radiography and NDT.</p> <p>h) Pipe jointing.</p> <p>i) Pipe laying.</p> <p>j) Special crossings (e.g. railways, roads, watercourses, third party services).</p> <p>k) Valve installations.</p> <p>l) Tie-ins.</p> <p>m) Pipe corrosion protection coating (internal and external),</p> <p>n) Wrapping.</p> <p>o) Backfill and reinstatement processes.</p>		

4.	<p>Regular and routine Audits will be carried out by NGN personnel or by its service provider of the SLO procurement and construction activities to confirm the key controls are in place. The level of auditing required will be determined by the level of control exercised by the SLO.</p> <p>The NGN audits will focus on but not be restricted to;</p> <ul style="list-style-type: none"> a. Materials traceability, handling and storage b. Welding -pretesting c. Weld inspection / testing d. Joint coating e. Coating inspection f. Backfill inspection g. Reinstatement h. Cathodic Protection systems i. Valve & plant installation 		
5.	<p>Compliance with detailed design:</p> <ul style="list-style-type: none"> • Routing • Pipe specification • Special Crossings • Installations 		
6.	<p>NGN/PM/G/17 Procedure completed to part C.</p> <p>Any design variations during construction resubmitted and appraisal completed against NGN standards and in accordance with the procedure.</p> <p>Any Deviation requests appraised and approved.</p>		
<p>SLO Competent Person has reviewed the data and information to check it meets the requirements before submitting to NGN Auditors –</p> <p>Signed > _____ Date> _____</p>			
NGN Audit			
		NGN – Auditor (Print)>	
		<p>The information supplied by SLO has been audited and found to be acceptable / unacceptable</p> <p>The findings are detailed in column 4 above;</p> <p>Outstanding actions which should be completed are listed below.</p>	

NGN Auditor Signed >		Date	
NGN Asset Owner Print >			
	<p>The requirements of Stage 5 have been achieved / not been achieved:</p> <p>The project may / may not progress to next stage /</p> <p>with the outstanding actions listed above to be completed by ></p>		
NGN Asset Owner Signed>		Date	

APPENDIX H

Testing and Pre-Commissioning

Project Name			Date
SLO -			
SLO Project Manager (Print)>		Signed>	
Ref	Detail	SLO Competent Person Signature	Findings
1.	SLO shall confirm the assets have been constructed as per the approved design and pre-testing inspection activities have been completed. a) Welding. b) Radiography and NDT.		
2.	Method Statements The SLO shall ensure all Method Statements are available for Pre-Commissioning and Testing plan. a) Route inspection. b) Internal Inspection by MFL or Ultrasonic tool. c) Coating survey –DCVG. d) Hydrostatic Test.		
3.	PSSR Written Scheme of Examination is in place for the new assets and approved by the PSSR Competent Person		
4.	Asset Construction approved by a competent Chartered Engineer		
5.	Post- Construction route survey completed by Competent Engineer to confirm construction of the pipeline reinstatement status etc.		
6.	PSR Regulation 21 Notification to HSE of intention to use the pipeline.		
7.	BS7671 completion of certificate of electrical testing to be available for completion following testing and commissioning electrical equipment.		
8.	Electrical and CP system tested and commissioned. Including record of location ground bed, test post readings etc. if applicable.		
9.	Hazardous area drawing (s).		

10.	SCADA points list agreed/submitted to NGN for all new Offtakes (Including Bio-methane sites etc.). <i>This needs to be submitted 5 weeks before commissioning</i>		
11.	Earthing philosophy and test results.		
12.	NGN/PM/G/17 Procedure completed to part D ready for approval to commission. Any design variations during construction resubmitted and appraisal completed against NGN standards and in accordance with the procedure. Any Deviation requests appraised and approved.		
13	The Technical Authority for the BIO1 management procedure has been consulted to check that all commissioning requirements (if applicable) have been met.		
SLO Competent Person has reviewed the data and information to check it meets the requirements before submitting to NGN Auditors – Signed > _____ Date> _____			
	NGN – Auditor (Print)>		
	The information supplied by SLO has been audited and found to be acceptable / unacceptable The findings are detailed in column 4 above; Outstanding actions which must be completed are listed below.		
NGN Auditor Signed >			Date
NGN Asset Owner Print >			
	The requirements of Stage 6 have been achieved / not been achieved: The project may / may not progress to next stage / with the outstanding actions listed above to be completed by >		

NGN Asset Owner Signed>	Date

APPENDIX I

Stage 7 Commissioning and Operational Acceptance

Project Name			Date
SLO -			
SLO Project Manager (Print)>		Signed>	
Ref	Detail	SLO Competent Person Signature	Findings
1.	<p>NGN/PM/G/17 Procedure completed to part E.</p> <p>Any design variations during construction resubmitted and appraisal completed against NGN standards and in accordance with the procedure.</p> <p>Any Deviation requests appraised and approved.</p>		
2.	<p>Successful Internal fingerprint inspection report required, to be procured by the SLO</p> <p>All new pipelines should consider internal inspection capabilities for pipelines with 1km in length or greater. As new technology is introduced the pipe length & diameter may be reduced.</p>		
3..	Routing survey report, confirming, reinstatement is in good order and marker posts have been installed.		
4..	Coating survey by DCVG confirming no coating defects present.		
5.	Hydrostatic Test Certificate and Report successfully completed in accordance with IGEM/TD/1.		
6.	<p>Operational drawings available:</p> <p>Engineering Line Diagram.</p> <p>PSSR Drawing.</p> <p>Hazardous Area Drawing(s)</p>		
7.	Non-Routine Operation Procedure for the commissioning of the assets.		
8.	Confirmation SCADA points list agreed with NGN for all new Offtakes (Including Bio-methane sites etc.).		
9.	Notification under Gas Act 1995 (Condition 8 Supplier of last resort).		

10.	PSR Regulation 21 Notification to HSE of intention to use the pipeline.		
11.	Pipeline has been registered on Aerial Surveillance Programme.		
12.	DSEAR Hazardous area equipment certification.		
13.	Site security arrangements in place.		
14.	End to end testing of instrumentation and telemetry.		
15.	Emergency Procedure and responsibilities agreed with SLO.		
SLO Competent Person has reviewed the data and information to check it meets the requirements before submitting to NGN Auditors – Signed > _____ Date> _____			
		NGN – Auditor (Print)>	
		The information supplied by SLO has been audited and found to be acceptable / unacceptable The findings are detailed in column 4 above; Outstanding actions which must be completed are listed below.	
NGN Auditor Signed >		Date	
NGN Asset Owner Print >			
		The requirements of Stage 7 have been achieved / not been achieved: The project may / may not progress to next stage / with the outstanding actions listed above to be completed by >	
NGN Asset Owner Signed>		Date	

APPENDIX J

Stage 8 Asset Adoption

Project Name			Date
SLO -			
SLO Project Manager (Print)>		Signed>	
Ref	Detail	SLO Competent Person Signature	Findings
1.	NGN/PM/G/17 updates completed to part F. Any Deviation requests appraised and approved.		
2.	Routing survey report, confirming, reinstatement is in good order and marker posts have been installed.		
3.	Coating survey by DCVG confirming no coating defects present.		
4.	Health and Safety file review as per CDM Regulations.		
5.	All relevant drawings recorded on NGN drawing systems and hard copies on site.		
6.	Databook package complete and accepted by NGN records department.		
7.	Written Scheme registered in NGN PSSR database.		
8.	NGN SAP Records updated and accepted.		
9.	Planning Hazardous Substance Reg Notification (>15T).		
10	Environmental Statement confirmation all requirements have been met.		
SLO Competent Person has reviewed the data and information to check it meets the requirements before submitting to NGN Auditors – Signed > _____ Date> _____			
NGN Audit			
		NGN – Auditor (Print)>	
		The information supplied by SLO has been audited and found to be acceptable / unacceptable The findings are detailed in column 4 above; Outstanding actions which must be completed are listed below.	

NGN Auditor Signed >	Date
NGN Asset Owner Print >	
	<p>The requirements of Stage 8 have been achieved / not been achieved:</p> <p>The assets have not / been adopted by NGN</p>
NGN Asset Owner Signed>	Date

Endnote

Comments

Comments and queries regarding the technical content of this safety and engineering document should be directed to standards@northerngas.co.uk.

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