Cadent

Your Gas Network

Structure for submitting <7bar Certification File- (IGT & UIP)

Issue Date: August 2023

Version Control

Implementation date

August 2023

Review date

August 2024

Document owner

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Management approval

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Contents

Scope

This document is intended to provide guidance on the structure to be adopted by Utility Infrastructure Providers (UIP's) in compiling quality assurance (QA) records for entry connections and exit connections to Cadent's ≤7 bar Network.

The guidance contained in this document should be used as an index / checklist to submit quality assurance documentation but is not intended to be exhaustive. The documentation will be stored in Cadent's Management of Change system against the project reference.

In any circumstance, a defined structure in-line with the guidance contained herein should be adopted to assist with a quick turnaround of QA Submissions.

Any comments and queries regarding this document should be submitted to the complex connections team, box.complexexitconnections@cadentgas.com

Section 1 - Approved Design

This section shall be populated with the design that has been provided User Acceptance (CAD/PM/G/17 Part C) and include any deviations from specifications.

Any design changes shall be included.

Section 1.1	Mechanical	Section 1.6	Software
Section 1.2	Civil / Structural	Section 1.7	Safety Engineering
Section 1.3	Electrical	Section 1.8	Process Engineering
Section 1.4	Instrumentation	Section 1.9	Deviations / Technical Queries
Section 1.5	Cathodic Protection		

Table 1: Design File Structure

An isometric drawing (or similar) should be provided with complementary Material-Take-Off (MTO) and datasheets where applicable.

Section 2 - Material Certificates

Material certificates for all components shall be grouped into sub-sections, where a component is not included, please provide in the other section.

Section 2.1	Pipe	Section 2.7	Transition Fittings (e.g. PECATS)
Section 2.2	Tees (including PEBS)	Section 2.8	Valves and actuators (inc Inspection & Test Certificates)
Section 2.3	Bends	Section 2.9	Stud bolts, Nuts, Gaskets & Washers
Section 2.4	Reducers	Section 2.10	Blank Plates & Vent Plugs
Section 2.5	Insulation Joints	Section 2.11	Other
Section 2.6	Flanges		

Table 2: Material File Structure

An isometric drawing (or similar) should be provided with complementary Material-Take-Off (MTO) and datasheets where applicable within the design section.

Declarations of conformity shall be provided for all equipment packages and skids to verify the equipment conforms to the appropriate directives and legislation.

Manufacturer's installation recommendations shall be provided.

For specific record requirements for refer to individual specification.

Note: *Section 2.8 Valve numbers are generated and issued to the UIP by Cadent on the Valve Card Template and must be populated and returned with the valve certification.*

Section 3 - Jointing Records

Section 3.1 - Welding Records

Welding Documentation Required in Pack

- Welding approval form
- Weld summary table identifying weld types, sizes, materials, welder ID, WPS, welding consumables and NDT carried out.
- Welding procedures specifications (PQRs are not required in documentation pack)
- Welder qualifications to BS EN ISO 9606-1, except where amended by the requirements of CAD/SP/P/1 or CAD/SP/P/9
- Materials certification
- Welding Consumables Index
- Welding consumables certification
- Welding equipment calibration certification
- Repairs and Cut Pipe Report
- BGAS / CSWIP Inspector of qualifications
- NDT technician qualifications
- NDT Inspection report(s)
- Pipework Internal Surveillance Report (photos confirming that the internal coating is intact and no debris has been left in pipe)
- Hydrotest report if applicable
- Calibration Record of equipment (where applicable)

Section 3.2 - PE Jointing

- Qualifications for the Jointer (Covered by EUSR NCO Gas Qualifications as appropriate to diameter)
- A joint summary table identifying joint type, size, diameter and material
- All Electrofusion / Butt-Fusion joints shall be marked with the following to ensure traceability:
    - EUSR Number
    - Date of construction [DD/MM/YYYY]
    - Operatives initials
- A joint map to complement the table
- Datasheet of all joint records from Electro-Fusion Box or Butt-Fusion Equipment (showing fusion cycle)
- Inspection records, including physical evidence of quality control such as pipe beads (numbered and dated)
- Pipe Alignment (calibration certificate of applicable equipment)
- Repairs and Cut Pipe Report
- Pipework internal surveillance report
- Joint equipment surveillance report
- Calibration record of equipment

Section 3.3 - Mechanical Jointing

For Jointing on pressure systems not greater than 7bar, CAD/SP/E/55 shall be referred to for acceptable Torque, bolts and gaskets, this document supplements GIS/F7.

- Bolting Procedure including details of tightening sequence, torque settings, Lubricant
- Marked up drawing of joint identification.
- Joint completion certificate (as per E/55)
- Torque Wrench and Calibration Certificates
- Material Certificates for stud bolts and nuts (see 2.9)
- Certificate of Conformity for Washers and Gaskets (see 2.9)

In accordance with CAD/SP/E/55, there shall be a minimum of two threads protruding beyond each nut face after final tightening. The screw threads protruding beyond the nut faces should be protected against corrosion.

Section 4 - Pressure Test Records

Pressure test records shall be provided for all pipework.

All testing plans along with proposed gauges and calibration certificates are to be reviewed by Cadent prior to testing being undertaken.

Pressure Test Records to include as appropriate:

- Strength Test Procedures including the test limit / Boundary drawing (specify medium)
- Tightness Test Procedures including the test limit / Boundary drawing (specify medium)
- Pressure Test certificates and record charts (signed and dated)
- Intermediate readings shall also be recorded and provided
- Pressure and Temperature shall be recorded.
- Pressure Gauges, Pressure recorders and test equipment for the measurement of pressure and temperature shall have accuracies in line with the testing specification (IGEM/TD/3, IGEM/TD/4, IGEM/TD/13 & GIS/PE/T6.3) and valid calibration certification to verify that they are within their required accuracy.
- Pipeline / Pipework drying & Cleanliness Certificate
- Test Certificates shall be reviewed by Cadent prior to commissioning (evidence required in closure pack)

Upon assembly of pipework spools, a leak tightness test shall be completed, and the following records provided:

- Leak test procedure including test limit/boundary drawing containing joint identification.
- Test record / chart (signed and dated), including calibration certificate.

Section 5 - Written Scheme of Examination (WSoE) Report

A written scheme of examination shall be prepared for the upstream over pressurisation protection devices to the Cadent Asset, in line with the Regulation 8 of PSSR 2000.

The user of the installed protecting devices for the upstream plant shall ensure that the WSoE is certified as being suitable by a competent person.

The WSoE report shall include the following.

- A copy of the certified WSoE
- A copy of the WSoE report completed for the pressure protecting devices
- A schematic drawing showing the locations of pressure protecting devices and IDs that correspond to asset tags
- Copies of the certification for pressure protecting devices confirming that they match the serial numbers and accuracy class or group (as applicable) of installed devices and design intent.

Any change to an over pressurisation protection device (e.g. modification or replacement) shall be communicated to Cadent

If any of the pressure protecting devices for the upstream plant is replaced the User shall forward a copy of the new certification to Cadent (confirming serial numbers and accuracy class or group [as applicable]) of the new device.

Section 6 - Civil Test Record

The Design and construction of concrete bases shall comply with CAD/SP/CE/1 - Specification for the design, Construction and testing of Civil and Structural works - General

The following record shall be provided, where applicable:

- Concrete Delivery Tickets
- Pre and Post pour Records
- Air entrainment records
- Concrete cube / Cure register, 28-day test reports
- Slump Tests
- Piling Records
- Rebar Records
- Alignment and Levels check
- Register of Civils works locations

Section 7 - Corrosion Protection Records

Section 7.1 - Coating Records

- Coating Procedure
- Record of internal coating to CAD/SP/CM/1, external coating to CAD/SP/CW/6, and field applied coatings to CAD/SP/CW/5
- Coating Consumables Index and Certification
- Applicator Qualifications register including copies of qualifications in line with OPITO
- Inspector Qualifications Register in line with NACE Coating Inspection Programme Level 3 (e.g. FROSIO, ICorr).
- Coating Inspection Report(s)

Section 7.2 - Paint Record

- Paint Procedure
- Paint application to CAD/SP/PA/10, for pressure systems not greater than 7barg, preferred paint finish to be Canary Yellow for the skid.
- Painting Consumables index and certification
- Applicator Qualifications register including copies of qualifications in line with OPITO Blaster/Painter Competence Assessment Course or a local equivalent e.g. BGas, CSWIP.
- Inspector Qualifications Register including copies of qualifications in line with industry recognised schemes e.g. NACE level 3, FROSIO, BGas, ICorr
- Paint Inspection Records

Note: *Any above ground pipeline to be laid colour scheme will need to be agreed with consideration for the environment.*

Section 7.3 - Cathodic Protection Record

- Refer to CAD/PM/ECP/2, CAD/PM/ECP/4, CAD/SP/ECP/7 and CAD/SP/ECP/8
- Current drain tests (for crossings where appropriate)
- Pre and Post installation electrical check on insulation joints
- Natural Potential test post survey & polarised potential MAJOR survey test post survey
- Coating defect survey for long buried pipe lengths
- CIPS
- Drawing showing location of test points, TR units, Ground beds and Test point readings
- Schematic, Photos and location description showing as installed locations of test posts

Section 8 - Electrical and Instrumentation Records

Inspection, Test and Completion Documentation to include the following:

- A register of Electrical and Instrumentation (E&I) Competent installers and inspectors, including CompEX details and Electrical Qualifications.
- BS7671 Electrical Installation - Initial Inspection and Test (EIC) Certificate(s) for all electrical assets to be owned by Cadent. Where applicable one certificate to cover factory acceptance tests (i.e. pre-installation) and another to cover Site Acceptance Testing (i.e. post installation)

Note: *Where responsibility for the electrical supply is contractually separate from the entry unit (GEU), a separate EIC shall be provided for the electrical supply to the GEU from the TN-S supply source*

- Earthing and Lightning system test records
- Standby electrical system / UPS / Charger test records
- E&I equipment data sheets, installation instructions and maintenance manuals
- EU Type examination' and 'Declaration of Conformity' certificates for all ATEX certified pieces of equipment
- DSEAR Register & Hazardous Area Equipment Initial Inspection Sheets to BS EN 60079-14
- Instrumentation field cable tests (i.e. insulation resistance and continuity
- Instrumentation impulse tubing pressure test records
- Communication & Telemetry equipment test records
- SCADA/DFO System end to end test results where applicable
- Copy of Remote Terminal Unit (RTU) Configuration file(s)
- E&I asset data shall be provided on the current version of the Asset Data Capture (ADC) spreadsheet
- Full set of E&I 'As Built' drawings in the approved CAD format

Section 9 - Special Crossings

This section is to be completed in line with the Stress Analysis for Exposed Pipeline Crossings Briefing Note

Exposed Pipeline Crossings – Buried crossings are preferred to exposed pipeline crossings in order to maximise the integrity of the system and minimise future maintenance and risks.

FORM TO BE COMPLETED BY THE ORGANISATION REQUESTING THE DESIGN APPROVAL. Failure to fully complete all sections or attach the relevant information may result in the review of the above ground crossing request being delayed pending presentation of all the required information. For assistance please see key contacts.	
Date form submitted.	
Name of person requesting the design approval. Including full company name and address.	
Contact telephone No.	
Contact email address.	
Full address or location of works including post code and grid reference.	
Customer reference	
Cadent reference No.	
Please provide here all supporting documentation e.g. specifications, photos, map extracts, PDF's.	*(Supplementary sheet to be added if required)*
Please detail here the full reason for the design of the special engineering crossing above ground pipeline as opposed to buried underground pipeline	

Engineering Quality Assurance Review

Name:	Name:	Name:
Signature:	Signature:	Signature:
Date:	Date:	Date:

Factors to be considered and evidenced when designing above ground crossings below 2 Barg:

Factors	**Checked**	**Comments**					
Feature to be crossed. e.g. navigable water course, farmland susceptible to dredging, electrified rail way etc. Provide ownership details of feature to be crossed (For ongoing access)		Railway	Road	Building	Open ground	Track/ Path	Water
If new special engineering crossing to be attached to 3rd party structure what agreements have been made							
Are any easements or agreements required for installation of and future maintenance of the above ground crossing?							
Provide potential risk for Environmental stability. e.g. slope stability, erosion of banks and beds, flood risks							
Provide provisions for ongoing accessibility for maintenance and repair to the entire structure							
Provide details of sufficiently designed and constructed barrier systems to deter unauthorised access in accordance with **G/19/D/101**							
Pipework Stress and stability analysis to the requirements of IGEM/TD/12 unless technical justification can be provided for the use of alternative design or pipe stress analysis standards or methods (see EB774 information)		- Anchorage requirements (if necessary) - Sustained load case to determine maximum unsupported length and necessary support requirements - Design of support/restraints - Abnormal or accidental loading / vandalism - Environmental loading (e.g. ice, wind, flooding)					
Provide details of appropriately designed support system ensuring no interference with CP system							
Confirm SMYS and grade of pipe? Confirm wall thickness is above minimum as specified in IGEM/TD/3 ensuring a safety factor of 0.3 SMYS							
Method of jointing to be employed (**welding procedure to be approved by Cadent**)							
Provide provision for isolation valves							

How shall the effectiveness of cathodic protection either side of the crossing be safeguarded. (Including isolation joints)		
Evidence wind / water line protected as per CAD/SP/CW/5		
Evidence above ground coatings applied shall be in accordance with CAD/SP/PA/10		
Detail impact protection for pipework and associated supports e.g. dredging and dumping, vehicular, river traffic etc. Carry out vehicle impact assessment as necessary		
Detail provision of accessible marker posts		
Provide detail of cathodic protection on any buried steel designed and installed in accordance with CAD/SP/ECP/7 and CAD/PM/ECP/4		- Inclusion of buried coupons to facilitate an indicative off reading - Inclusion of reed switches in test posts to facilitate an instant off reading - Post commissioning survey - Natural potential survey

Section 10 - Governor Installations

Governor installations are covered by GIS/E/34, Cadent has published supplementary guidance to GIS/E/34 that can be found on our website. The appendices contain a series of requirements for certificates of conformity.

The below requirements are in addition to E/34:

- Confirmation that devices have been set to agreed set points by WSoE.
- Confirmation that ventilation of the kiosk is in line with the assumptions in the hazardous area assessment and relief system has been installed correctly. A copy of the hazardous area drawing shall be retained on site.
- Confirmation of any actions from HAZOP study have been carried through to construction where applicable.
- Vehicle Restraint installed in line with accepted design where applicable.
- Confirm Locks have been installed and keys have been provided too Cadent.
- Confirmation access and egress into kiosk is free from obstruction.