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<b>Technical Request</b>	<b>N4G</b>	Effective from:	1.8.2018

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## **A General Specification of Activities Performed by the Inspection Company**

### **A.1 Required activities:**

- **Technical supervision of the builder – comply with the provisions of Act No. 183/2006 Coll.**
- **Construction Supervisions , Inspection of Compliance with the Technological Work Procedures, Project Documentation and Technical Documentation**
- **Activities in conformity assessment,**
- **Expert activity**

### **A.2 Definitions**

For the purposes of this Specification, the following terms are applied:

Client                    Is the common name used for the Client or Owner or Purchaser.  
Third Party:            Is the independent, experienced and accredited expert/institute authorised by the responsible government.

Client's Supervisor of works      Carries out all the jobs assigned to him by the Client by proxy or by contract, in the interest of the Client.

Technical supervision of the builder- conducting activities comply with the provisions of Act No. 183/2006 Coll. Abbreviations

ISO	International Organisation for Standardisation
EN	European Standard
CSN	Czech Standards Institute
TPG	Technical Regulations- Gas
IEC	International Electrotechnical Commission
WPQ	Welding Procedure Qualification
WPQR	Welding Procedure Qualification Record
WPS	Welding Procedure Specification
NDT	Non-destructive testing
UT	Ultrasonic Testing
MT	Magnetic Testing
PT	Penetrant Testing
VT	Visual examination
RT	Radiographic Testing
TDI	Client Technical Supervision

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### **A.3 Location, Subject, and Term of Inspection Activities**

The inspection activities specified in this document will be carried out within the territory of the Czech Republic

Terms: Specified in the contract

Activities relating to technical inspection of materials will be carried out on site or on the workshop of Construction company.

### **A.4 Construction Supervision Organisation**

The Construction Supervision Organization is listed in the Annex of this document  
Supervision Organization Chart of Project: HPPL

## **B Scope of services**

### **B.1 Technical Supervision of the Client (TDI)**

**Technical supervision of the builder – comply with the provisions of Act No. 183/2006 Coll.**

Required activities

Within the framework of technical supervision, the following shall be executed in particular:

- getting to know with documents of the construction according to which the construction project is prepared - in particular becoming familiar with the project design documentation, content of agreements, and content of land and building permits,
- construction site (workplace) delivery to contractors and assurance of record into the construction (erection) log book,
- takes part and represents the Client within the materials handover process between supplier and Contractor at contractor's pipe yards and store premises (in case of materials ordered and purchased by Client)
- recorded delivery of the basic directional and elevation surveying of the construction to the Contractor,
- participation in verification of terrain surveying by the contractor before commencement with the works,
- compliance with the conditions and requirements specified in the land and building permissions documents and measures required by the State Construction Supervision Body during the period of construction execution,
- attend on systematic completion of the documentation according to which the construction project will be executed and recording the documentation relating to completed parts of the construction,
- review of completing documentation for trial operation, as built documentation, final operation permit documentation,
- negotiation relating variation orders with the Contractor without influence on the project cost, don't extend the period of construction, and don't have impact on the construction parameters,

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- check of those parts of the supplies, which will be enclosed in the next steps, or which will become inaccessible; recording the inspection result into the construction log book,
- cooperation / communication with personnel of the (general) engineering company performing author's supervision during assurance of compliance of executed supplies and works with the design,
- cooperation with (general) engineering company and with suppliers during execution or proposing of measures aimed at elimination of any possible design defects,
- monitoring and witness of the contractors they providing the specified and agreed tests of materials, structures, and works, review and approval their results, and requests documents proving the quality of performed works and supplies (certificates, attestations, records, etc.),
- monitors keeping the construction and erection logs in accordance with the conditions specified in relevant agreements,
- Review of archaeological I pyrotechnical reports and inform the findings by client,
- cooperates with Contractors' personnel during adoption of measures aimed at preventing or reducing damages whenever the construction is threatened by any natural disasters,
- checks advance of works with regard to the time schedule and provisions of individual agreements, informs the supplier about non-compliance with the terms, including preparation of supporting documents for property sanctions application,
- inspection of proper storage of materials, equipment, and structures,
- inspection of construction works , e.g. excavation, backfill, lowering-in of pipeline, concrete works etc., prepares supporting documents for final evaluation of construction during the course of the construction project,
- preparation of supporting documents for delivery and acceptance of the construction or its part(s) and participation in negotiations relating to delivery and acceptance,
- review of documents submitted by the Contractor during delivery and acceptance of completed construction in advance before Contractor these documents will submit to client
- check of elimination of any defects or arrears identified during acceptance in agreed terms,
- participation in final operation permit related project documents ,
- check of contraction site clearance by the Contractor,
- assuring cooperation and work execution with responsible land surveyors.
- conducting a regular review and approval of the construction log book and making records in the construction log book

### **B.1.1 Personnel Qualification:**

Position:

**TDI**

Experience with Pipeline construction and knowledge of Czech Act No. 183/2006 Sb., as amended.

The person in the position TDI and the head of the inspectors on an individual LOT shall have a professional experience of the activity TDI.

### **B.2 Construction Supervisions , Inspection of Compliance with the Technological Work Procedures, Project Documentation and Technical Documentation**

Specification (In Annex):

C4G-HPPL-ILF-LOT02-NAK-MAN-921 Scope of Work for General Contractor - LOT II

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C4G-HPPL-ILF-LOT01-NAK-MAN-920 Scope of Work for General Contractor - LOT I  
 Technical requirements NET4GAS  
 C4G-HPPL-ILF-GENER-BOZ-MAN-910 Requirements on HSE Management for General Contractor

### *B.2.1.1 Check of Stripping and Right-of-Way According to the Engineering documents*

### *B.2.1.2 Earthworks Inspection*

Specification (in Annex):

C4G-HPPL-ILF-GENER-STA-SPC-800 Earthworks - Specification

C4G-HPPL-ILF-GENER-STA-SPC-803 Concrete and Reinforcement - Specification

#### **Excavation inspection**

Check of geometry, sloping	Monitoring
Soil type evaluation – grain size, stones	Monitoring
Check of the bottom, compaction, presence of stones	Monitoring

#### **Acceptance of Excavations**

Physical check, check of the bottom, geometry.	Scope: 100 %
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#### **Check of bedding, padding**

	Scope: 100 %
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#### **Check of backfill, covering**

	Monitoring
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### *B.2.1.3 Erection Inspection - Inspection of assembly*

#### **Specification (in Annex):**

C4G-HPPL-ILF-GENER-LIN-SPC-805 Construction Specification

C4G-HPPL-ILF-GENER-STR-SPC-802 Painting and Coating – Specification

C4G-HPPL-ILF-GENER-LIN-SIT-300 C.4 - Overview Layout

C4G-HPPL-ILF-GENER-LIN-SPC-803 Pressure Tests and Stresstests - Specification

C4G-HPPL-ILF-GENER-LIN-SPC-801 Welding Specification

C4G-HPPL-ILF-GENER-LIN-SPC-804 Cleaning, Calibration and First Run - Specification

C4G-HPPL-ILF-GENER-STR-SPC-822 NDT Specification

C4G-HPPL-ILF-GENER-STR-SPC-823 Piping Installation and Fabrication Specification

#### **Inspection of transport and placement**

Check of temporary storage	Monitoring
Check of transport method –	Monitoring
Check of loading – cranes	Monitoring

#### **Erection Preparation**

Beveling preparation – random	Monitoring
Cleaning of ends – random	Monitoring
Preheating check, including temperature measurement during welding	Monitoring
Check of alignment – centralizer	Monitoring
Check of welding electrodes, documentation inspection	Monitoring
Check of electrodes drying	Monitoring
Check of welders, documentation inspection	Scope: 100 %

#### **Erection and Welding Inspection**

Check of erection, bends, other components	Monitoring
Check of welding parameters	Monitoring
Equipment condition check	Monitoring
Repairs check	Scope: 100 %
Visual Inspection of welds	Review
Check of continuously maintained documentation	Review
Check of designation, transfer of numbers	Monitoring
Inspection of geodesic surveying	Monitoring

### *B.2.1.4 NDT Inspection*

#### **Preparation inspection**

Inspection of procedures	Scope: 100 %
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Inspection of NDT personnel – certificates	Scope: 100 %
Check of equipment calibration, calibration plates	Scope: 100 %
<b>Continuous inspections, verification</b>	
Check of US inspections documentation	Review, Hold
Check of X-ray and films	Review , Hold
Check of NDT documentation completeness in comparison with welds	Monitoring

#### *B.2.1.5 Insulations Inspection*

##### **Preparation inspection**

Inspection of insulation material – certificates and storage	Monitoring
Personnel qualification inspection	Scope: 100 %
Inspection of technical means for work	Monitoring

##### **Insulation inspection**

Sand blasting inspection	Monitoring
Preheating inspection	Monitoring
Inspection of insulation works execution	Monitoring
Insulation thickness inspection, visual inspection	Review
Adhesion inspection	0,1%

##### **Inspection of pressure tests**

Preparation inspection	
Stress test method statement inspection	
Scope: 100 %	
Equipment check	Review
Check of pressure chambers installation	Scope: 100 %
Inspection – management – tests, tests course	Scope: 100 %
Tests documentation inspection	Review
Inspection of the main pressure test	Review

##### **Inspection of cleaning, drying, and calibration**

Check of the quantity of impurities	Review
Calibration inspection – photographic documentation	Review, Hold
Drying check – dew point temperature	Review

##### **Inspection of electrical installation, earthing**

Inspection of cable installation	Monitoring
Tests of continuity and insulating condition of wires of installed cables	Monitoring
Inspection Supply and installation of power switchboards	Monitoring
Individual tests of connected electrical equipment	Monitoring
Inspection of default revisions to electro	Review
Inspection of ground conductor installation	Monitoring

#### *B.2.1.6 Documentation Inspection*

Inspection of certificate and material documentation and its assignment on project	Review
Verification of completeness and correctness	Review
Verification of contractor's quality related documents and reports	Review
Confirming Red mark drawing	Review

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### *B.2.1.7 Personnel Qualification - Requirements*

**Position :-**

**Site Inspection Manager**

experience with the implementation of inspection activities on a project with a similar focus and management of a team of inspectors, 5 years of inspection activities on gas pipelines and at least management of a team of inspectors on 2 projects with a similar focus

**Mechanical Supervision**

experience with the implementation of inspection activities on a project with a similar focus, Certificate RT -Level 2 according EN ISO 9712

**Mechanical Supervision / Welding engineer**

pursuant to EWF/EOTC (European Welding Federation/ European Organization for Testing and Certification) or IIW (International Institute of Welding) directives

**EICT Supervision,**

experience with the implementation of inspection activities on a project with a similar project

**Civil Supervision**

experience with the implementation of inspection activities on a project with a similar project

**NDT Inspector - RT**

NDT personnel qualification:- for RT, methods: Level 2 pursuant to SNT-TC-1A or pursuant to EN ISO 9712

**NDT Inspector - UT**

NDT personnel qualification:- for UT, methods: Level 2 pursuant to SNT-TC-1A or pursuant to EN ISO 9712

## **B.3 Activities in conformity assessment**

### **B.3.1 Inspection Activities on materials**

#### *B.3.1.1 Inspection of mechanical materials:*

- Pipe
- Ball Valves & Actuators
- Station material for construction
- Scraper traps
- Line Bends
- Fittings

The Inspection will be provided on site or in the work shop by of the supplier or the Contractor.

#### *B.3.1.2 Personnel Qualification*

**Technical inspector**

Experience with the implementation of inspection activities on the materials referred to in point-B.3.1.1.

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### **B.3.2 Contractor's Readiness Inspection**

Specification (In Annex)

C4G-HPPL-ILF-LOT02-NAK-MAN-921 Scope of Work for General Contractor - LOT II

C4G-HPPL-ILF-GENER-BOZ-TZP-902 HSE Plan for Construction Phase (BOZP)

#### *B.3.2.1 Verification of Contractor's Personnel Qualification*

##### **Verified Contractor's Personnel:**

- Revision technician – VHP gas equipment, pressure increase and reduction
- EWE / EWT
- Personnel for visual inspections VT – pursuant to the provisions of EN ISO 9712
- Operators of automated equipment
- Binders for each assembly group
- Land surveyors – agreement pursuant to technical requirements of NET4GAS
- Insulators – tests pursuant to the provisions of TPG or acknowledged by the certification firm
- Insulation inspectors pursuant to the provisions of TPG or acknowledged by the certification firm
- Head technician for stress test – experience with stress tests on DN over 900 and overall tested section lengths over 100 km
- Foremen with experience and certificates
- Site manager – authorized technician

#### *B.3.2.2 Technical Means*

##### **Verified Contractor's Technical Means:**

- Pipelayers
- Dozers
- Centralizers
- Welding automats
- Pre-heating equipment
- Cranes
- Equipment for soil sorting (screen) or crusher
- Welding aggregates
- Meters, tape meters, other length meters
- Pressure gauges, pressure sensors
- Equipment for measurements on welds
- Thermometers, temperature sensors

## **B.4 Expert activities**

On request of NET4GAS provide expert consultation for inspectors and NET4GAS at a construction site in the scope of Annex SPR HPPL in specializations:

##### **NDT**

NDT Expert, NDT personnel qualification:- for RT, UT, methods: Level 3 pursuant to SNT-TC-1A or pursuant to EN ISO 9712

##### **Tests and Revision Procedure**

- RGE revision technician within relevant scope (VHP) pursuant to the provisions of Regulation No. 21/1979 Coll. With minimum practice of: 5 years

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- REE revision technician pursuant to the provisions of Regulation No. 73/2010 Coll. with minimum practice of 5 years

#### **Construction Process:**

Authorized engineer – certificate about authorization by ČKAIT – Czech Chamber of Authorized Technicians in Civil Engineering pursuant to the provisions of Act No. 360/1992 Coll., on execution of job of authorized architects and on execution of job of authorized engineers and technicians active in civil engineering, as amended by Act No. 164/1993 Coll., Act No. 275/1994 Coll., and Act No. 224/2003 Coll. and Act No. 189/2008 Coll.

## **C Management Requirements**

### **C.1.1 Minimum Scope of Human Resources Assurance**

**Document:** Organization of supervision

### **C.1.2 Quality documentation, required Information about Quality**

- *Regular submission of reports*
  - Once a week – operative report about quality
  - Once a month – continuous report about quality
  - List of quality issues
  - Final overall report about project/LOT quality
- *Information about main deviations in the area of quality*
- *Inspection reports from individual operations*
- *Inspection Report from material inspection*
- *Expediting Report*
- *Verification of contractor's quality related documents and reports*
- *Confirming Red mark drawing*

### **C.1.3 Quality Verification Procedures for Individual Operations**

The inspection company must present the procedures for verification of quality of the following operations to NET4GAS for approval:

Earthworks  
Assembly and Welding  
NDT  
Pressure Tests  
Construction works

### **C.1.4 Project Quality Management Procedure**

Inspection company must present organizational assurance of the project including qualification of individual inspectors as a part of its quotation.

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### **C.1.5 Communication**

Knowledge of Czech environment, communication with state authorities will be in Czech language.

Communication with construction contractor(s) will take place in Czech language or in English.

The position Site inspection manager and TDI shall communicate in Czech language.

### **P Annexes**

- P1 TP-T01\_01\_01\_03 Technical requirements NET4GAS
- P2 C4G-HPPL-ILF-LOT01-NAK-MAN-920 Scope of Work for General Contractor - LOT I
- P3 C4G-HPPL-ILF-LOT02-NAK-MAN-920 Scope of Work for General Contractor - LOT II
- P4 C4G-HPPL-ILF-GENER-BOZ-MAN-910 Requirements on HSE Management for General Contractor
- P5 C4G-HPPL-ILF-GENER-STA-SPC-800 Earthworks - Specification
- P6 C4G-HPPL-ILF-GENER-STA-SPC-803 Concrete and Reinforcement - Specification
- P7 C4G-HPPL-ILF-GENER-LIN-SPC-805 Construction Specification
- P8 C4G-HPPL-ILF-GENER-STR-SPC-802 Painting and Coating – Specification
- P9 C4G-HPPL-ILF-GENER-LIN-SIT-300 C.4 - Overview Layout
- P10 C4G-HPPL-ILF-GENER-LIN-SPC-803 Pressure Tests and Stresstests - Specification
- P11 C4G-HPPL-ILF-GENER-LIN-SPC-801 Welding Specification
- P12 C4G-HPPL-ILF-GENER-LIN-SPC-804 Cleaning, Calibration and First Run - Specification
- P13 C4G-HPPL-ILF-GENER-STR-SPC-822 NDT Specification
- P14 C4G-HPPL-ILF-GENER-STR-SPC-823 Piping Installation and Fabrication Specification
- P15 C4G-HPPL-ILF-GENER-BOZ-TZP-902 HSE Plan for Construction Phase (BOZP)