SLOVENSKÉ ELEKTRÁRNE

Purchase Technical Specification

Číslo dokumentu / *Document no.*
PNM34482639

Strana *Sheet* **1** z *of* **42**

Projekt *Project*
MOCHOVCE POWER PLANT
Completion of Units 3 and 4

Stupeň dôvernosti *Security Index*
Company Use / P

Názov *Title*
PIPING AND ELECTRICAL INSTALLATION WORKS OF FIREFIGHTING SYSTEMS (Ex. Job No. M29)- UNIT 4

Komponent *Component*		Typ dokumentu *Document Type* **ST**	Disciplína *Discipline* **M**	Súbor *File* **PNM3448263901.pdf**
Scope of issue *Účel vydania*	**PO**			BT komponentu Component safety class: **IV, NC**
Blok/ Unit	**4**	PS/DPS/SO **4.57.01:08** set/subset/c.Structure: **CS 490/1-02, CS 805/1-02, CS 806/1-04, CS 510/1-02, CS 800/1-02, CS 805/1-02**		

REV	Popis zmeny / *Description of Revisions*
00	First issue for Tender.
01	Modified scope of material supply.

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REV	Dátum *Date*	Účel *Purpose*	Spracoval *Prepared by*	Spolupracoval *Co-operations*			Overil *Verified by*	Akceptoval *Accepted by*	Odsúhlasil *Approved by*
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1. EXECUTIVE SUMMARY

Scope of the present Purchase Technical Specification is the definition of erection activities to be done in order to complete the installation Fire Fighting System of the Unit 4 of Mochovce Nuclear Power Plant (original scope of Job M29 assigned through Contract n°:4600006117 between Slovenske Elektrarne and EUSEBI impianti s.r.l.). Performing the erection activities will be continued under supervising of ValvItalia (before Eusebi impianti s.r.l.) and Client's representatives.
The scope of work is the execution of erection activities on a unit rate basis.

1.1 TERMS AND ABBREVIATIONS

Terms

Client	Slovenske Elektrarne (SE)
Contractor	Other Companies involved in MO34 completion under SE Coordination
Classified Equipment	Classified Equipment as per Decree 430/2011 UJD SR and provision of Basic Design

Abbreviations

ATD	Accompanying Technical Documentation
BD	Basic Design
CI	Conventional Island
CSMS	Comment Sheet Management System
DD	Detail Design
DPS	Elementary Subsystem / Dielci Prevadzkovy Subor
DPVs	Partial Project Outputs
EPS	Engineering Plan and Schedule
MO34	Mochovce NPP Unit 3 and 4
NI	Nuclear Island
NPP	Nuclear Power Plant
PS	Elementary System / Prevadzkovy subor
SE	Slovenske Elektrarne
EPS	Engineering Plan and Schedule
QCP	Quality Control Plan
QMS	Quality Management System
QP	Quality Control Plan
PS	Number used to identify elementary system according to functional system name
DPS	Number used to identify elementary subsystem according to functional system name
WR	Written Request
SE-COS	Construction Department of Slovenske Elektrarne
LOT	Construction Units representing an entire system or block lines
BOM	Bill of Material

FW	Field Weld
NDT	Non-Destructive Testing
PTFE	Polytetrafluoroethylene
QA	Quality Assurance
QC	Quality Control
WPQTR	Welder and Welding Operator Performance Qualification Test Record
WPQR	Welding Procedure Qualification Record
WPS	Welding Procedure Specification
NCR	Non Conformity Report
EFD	Engineering Field Disposition
PTS	Purchasing Technical Specification
AB	As Built documentation
BDA	Basic Design Amendment
CE	Conformité Européenne
CSMS	Comment Sheet Management System
DD	Detail Design
EMO12	Mochovce NPP Unit 1 and 2
ITP	Inspections and Tests Plan
KP	Controlled zone
LT	Leakage test
ND	Non Descructive
PT	Penetrant test
PTS	Purchase Technical Specification
QA	Quality Assurance
QC	Quality Control
SJZ	Uniform Designation System / Systém Jednotného Značenia
SoW	Scope of Work
SP	Monitored zone
TP	Technological Procedure
UJD	Úrad Jadrového Dozoru / Slovak Nuclear Safety Agency
VT	Visual test
WPQR	Welding Procedure Qualification Report

Unifying acronyms and terms used in SE-MO34 are prescribe in PNM34082079 THE DATABASE OF TERMS & ACRONYMS [R15]

1.2 PLANT DESCRIPTION

Mochovce Nuclear Power Plant is situated in the Southwestern region of Slovakia, not far from the district towns of Levice, Nitra and Zlaté Moravce. It is situated at the south of the mountain ranges and plains of Štiavnické vrchy and Pohronská pahorkatina.

According to the original design, the plant consists of 4 units of VVER 440/213. Pressurized water reactors of the Russian design. Units 3 and 4 in the Mochovce nuclear power complex are adjacent to the already operating units 1 and 2 and use the auxiliary systems already built and operable which are common for all 4 units.

A Basic Design relevant to the units 3 and 4 has been developed for SE by the DOSMO consortium. Scope of the current project is the completion of Units 3 and 4 for commercial operation. Each Unit is organized in two main areas: Nuclear Island (NI) and Conventional Island (CI). The Detail Design of Unit3 and Unit 4 is performed by several Contractors, under the coordination of SE.

The languages of the project are Slovak and English. Documentation shall be provided in both languages.

2. SCOPE OF WORKS

2.1 GENERAL CONTENT

The scope of work includes, but is not limited to the following activities:

a) Mechanical erection works:

- On site pre-fabrication, assembly and erection of pipelines, valves, in-line components, primary supports;
- Erection of equipment;
- On site prefabrication and erection of steel structures and auxiliary structures for supports (as it is defined in Annex [A6]);
- Installation of fire fighting nozzles (e.g. sprinklers)
- Surface preparation and painting works (including supply of materials);

b) Electrical & Instruments works:

- Installlation of rigid metal conduits including supports;
- Installation of cable trays including supports;
- Installation of any additional metal structures to be required during erection phase (as it is identified in Annex [A7] Electrical and I&C installation works in C.I. U4)

- Installation electrical equipment
- Laying of cables;

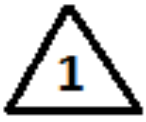
c) Civil Works:

- Erection of carbon steel structures and/or hot dip galvanized (as defined in Annex [A8]);
- Installation of drilled anchor plates on masonry and concrete structures without liners;
- Supply and erection of anchoring plates welded on hermetic carbon steel liners. Non hermetic carbon steel liners, stainless steel liners, steel structures, steel embedments

d) Various works

- Fire proof sealing and non fire proof sealing of penetrations and openings (including materials supply), in concrete and masonry structures located on walls and floors where pipes, conduit and cables ways and in general components are installed;
- Indivudal Test (for ELE/I6IC part) and pressure test (Mech. Part) including of any required temporaries;
- Issue of the Accompanying Technical Documentation (part B) relevant for the Erection stage of the involved systems.
- Issued of Red Mark-up in as buit version of documents (see par. 2.5.7 2)
- Labelling and Painting activities (as specified in details design documentation)
- Scaffolding and all other tools necessary to execute all the activties;
- Issue of documents as per par. 6;
- Warning / safety labels and instruction panels related to the supplied system /components according to valid legislation and SE rules [G5, G13, G14];
- Tags for supplied equipment, including pipes and cables according to valid

  legislation and SE rules [G5, G13, G14].
- Correct glanding and installation of cables into control and electrical panel



- Coating (including surface preparation) of steel structures, steel plates
- **Minor material supply on demand.**

2.2 DESCRIPTION OF SYSTEM

2.2.1 LOCATION

Original scope of work of Jobs M29 was divided as per LOTs consisting of pipelines belonging to different systems. The same groupment will be maintained for the present PTS as listed in Valvitalia Line List [A3.1]. The following table is the overview of the LOTs versus corresponding involved DPSs.

Original scope of work of Job M029 was divided by Lots and DPSs as per following table:

DPS	LOT	Description	System	Unit	Notes	C.I. / N.I. Building
4.57.01	1A.1	WATER MIST system (SEISMIC resistant) in 805/1-02 and 806/1-04, Unit 4 (connection to NI, with classified valves, excluded)	SGF SEISMIC, CS+LW	4	Fixed Firefighting system in cable rooms	C.I. and, CS 490/1-02 805/1-02 806/1-04 800/1-02
	1A.2	WATER MIST system (NOT SEISMIC resistant) in 805/1-02 and 806/1-04, Unit 4	SGD NOT SEISMIC, CS+LW			
	1B.1	WATER MIST system (SEISMIC resistant) in 805/1-02 and 806/1-04, Unit 4 (connection to NI, with classified valves) Unit 4 - Electric Actuator valves	SGF SEISMIC, CI: 4SGF41-44AA002, 4SGF43-44BR001			
	3A.1	WATER MIST system (NOT SEISMIC resistant) in 490/1-02 Unit 4	SGD NOT SEISMIC, TH			
	4A.1	WATER MIST system (SEISMIC resistant) in NI Unit 4	SGF SEISMIC, NI			
4.57.07	1C.1	WATER CURTAIN system in Lengthwise Unit 4	Water curtain (all)	4	Water spray curtain at +14,70 in SO 805/1-02	C.I. 805/1-02
4.57.08	All Above*	Electrical	N/A	4	Electrical part	C.I. See above*

Table #1

*Related to all above mentioned DPS vs LOT in the table.

Contractor shall take into consideration that the systems indicated in Table #1 are partially completed.

Reference document for identification of areas and buildings is E041200033V [R5]

Environmental conditions within MO3&4 NPP are prescribed in E041200015T [R6]

2.2.2 DPS SYSTEM APPORTION

System description listed in this chapter are for information only.

2.2.2.1 DPS 4.57.01 – FIXED FIREFIGHTING SYSTEM IN CABLE ROOMS

High pressure water mist systems protect the cable distribution areas of CS 800/1-02,CS 805/1-02 (partial), CS 806/-04 and CS 490/1-02 (partial) and the rooms of lube oil system in CS 800/1-02.
There are two systems, the seismically resistant one and seismically nonresistant one. The systems are fed with demineralized water in standard way. In case of emergency there are used more sources DPS 4.07.01(Demi water), PS 3.31(essential service water) and fire brigade truck.

In general, each of the two (2) high pressure water mist systems includes:

- Water filters and manually operated chemical adding system;
- N. 2 demineralised water storage tanks (2 * 50%) with accessory assembly;
- N. 4 electric positive displacement piston pumps (3 * 33%, 1*backup);
- N. 1 electric positive displacement vane pump - Jockey pump;
- Valves (control valve, gate, manual, check, check flap, electromagnetic stop,electric gate, safety valves, drain valves);
- High pressure nozzles;
- Stainless steel water piping;
- Piping fittings and mounting (adapting pieces, supports, suspensions, etc.);
- Instruments;
- Electrical Switchboards (refer to E18);
- Control cabinets dedicated to the system, PLC type (refer to M82)
- Power, control and signal cables
- Mimic panels;
- In field discharge lock off devices (stop buttons);
- In field optical and acoustic warning signallers;
- In field “Extinguishing ON” warning panels;
- Flexible hoses and flow meter assembly for water mist system (DPS 4.57.01 testing, one set to be used in all pumping stations.

The rooms (extinguishing compartments) protected by the high pressure water mist firefighting system are listed in Attachments M81. More over additional room in 490/1-02#0011a/4 to be protected.

2.2.2.2 DPS 4.57.07 - WATER SPRAY CURTAIN AT +14,70 IN SO 805/1-02

This DPS protect the wall openings between Turbine Hall and Lengthwise Electrical Building in the area of Unit 4 creating a water spray curtain. This system is composed by:

- Valves (butterfly valves, check valves, electromagnetic stop valves, etc.);
- Drain valves
- Filters;
- Nozzles;
- Piping network;
- Piping fittings and mounting (adapting pieces, supports, suspensions, etc.);
- Control and signal cables
- Instruments.

2.2.2.3 DPS 4.57.08 - ELECTRICAL PART

This DPS provides all the electrical material and equipment needed for the power supply and power and signal distribution within the system supplied, including (but not limited to):

- the firefighting sub switchboards - SHZ switchboards;
- all power and control cables and cable ways from the firefighting sub-switchboards (SHZ switchboards) / SHZ control cabinets to all on field loads and instruments;
- connection from supplied equipment / components up to the main earthling system.

Detailed description of the equipment to be supplied is given in the electrical documents listed in paragraph. 15.4

2.2.2.4 FIRE BRIGADE CONNECTIONS

Fire brigade connections with Storz coupling 2x75B per each system (seismic resistant and non-seismic resistant) in DPS 4.57.01 are included in SOW.

2.3 BATTERY LIMITS

Battery limits applicable to all systems of this PTS are reported below. All connections to the interfaces at the battery limits, including material are the responsibility of the supplier.

2.3.1 ELECTRICAL

Motorized valves and manual valves with electrical signalization will be installed Including their electrical connections.

Battery limits are:

- The terminals for connecting the incoming power cables of each SHZ electric switchboard;
- Secondary earthing bars provided by SE at suitable locations.

2.3.2 I&C

Required tapping points shall be installed as per relevant Isometric drawing and P&ID. Scope of supply is limited to install the tapping points and root valves were required.

The battery limits are the terminal strips of Firefighting Systems control cabinets.

The battery limits for:

- pressure switches of the air detection system of DPS4.57.02 (see Attachment IC8);
- Flow switch and pressure switch of water curtain DPS4.57.07,
- DPS 4.10.10 cable connection to transfer signals to DPS 4.91.01

are terminal strips within junction boxes located near the relevant Instruments.

2.3.3 CIVIL

Battery limits (included) are the following:

- Anchoring plates (anchor bolts, base plates, welding to existing structures and linerers): supply and erection, including drilling, grouting, welding and coating of plates.

Exclusion:

- Foundation or basement of the equipment ;
- drilled anchoring plates in carboon steel hermetic liners, carbon steel non hermetic liners, stainless steel liners;
- creation of new penetration: drilling, grouting, sleeves and in general civil works to realize new openings and penetrations

2.3.4 INPUT DATA

Client will provide to Contractor the exact scope of works as per dates specified at day of sign the contract. In addition Client will pass after the contract award to the Contractor the following documents:

a) Isometric collections, list of components (valves, etc.), piping supports collections, layouts, P&IDs, etc.
b) Typical for construction of anchoring plates
c) Electrical diagrams
d) Electrical schematics
e) Cables tray drawings
f) Equipment layouts drawings
g) Cable list and cable pulling card
h) NCRs and EFDs not closed and relevant for the SoW of the present PTS
i) Documentation relevant for erection (logbooks, minor change registers, etc.)
j) Technical book for mechanical works CI [A6]
k) PURCHASE TECHNICAL SPECIFICATION FOR ELECTRICAL AND I&C ERECTION WORKS IN CONVENTIONAL ISLAND UNIT 4 [A7] and documents mentioned therefore
l) Procedure and instruction
m) Drafts of relevant QA/QC documentation (ITPs, TPs etc)

All relevant documentation shall be transmitted by Client to Contractor following the rules stated in PNM34080144 par. 4.4. [R10]

2.3.5 SCHEDULE OF ACTIVITY

Each line of the schedule of activities shall include, at a minimum, the following elements:

- Undividible portion of activity – (single Written Request as per par. 2.5.4)
- Belonging of activity (Lot, PS, DPS, TPSD/STP)
- Duration estimated
- Dependencies (e.g. materials/components availability – interference with other Contractors, etc)
- Critical Path
- Resources adopted (as per Price Breakdown List par. 10)
- Timeline

Schedule of Activity document shall be submitted to Project manager and Planning Department of Client for verification and approval.

2.3.6 MONITORING ACTIVITY

Contractor will jointly monitor the progress of activities with Construction and Quality departments of the Client by holding meeting/workshop on weekly basis, site survey, field inspections and audits on the ongoing activities including documental portion.

Contractor will provide Progress Report on weekly basis where following items shall be highlighted:

- Progress performed in comparison with defined schedule
- Issued documents
- Critical points
- Raccomandations

2.3.7 CORRECTIVE ACTION

In case of deviations of not fulfillment of whichever aspect occurred during Work Order execution, relevant NCR shall be issued by Contractor. Construction department of Client will be immediately informed and NCR transmitted to relevant Department for its solution as per procedure PNM34080055 listed in Project Rules [R1].

2.3.8 LOT COMPLETION

Once all the Work Requests belonging to the same LOT, as it is listed in chapter 2.2, will be completed and approved, Contractor will issue the "Certification of Completion". Certification of Completion will include list of each EFD/NCR processed along the entire LOT.

2.3.9 COMPLETION OF WORKS BY LOT

Contractor once completed a work dedicated to respective LOT will inform Construction department through "Contract Notice". Subsequently, Construction department of Client will provide to carry out the following steps:

- Inform QC/QS in order to get them approval on correct completion of LOT.
- Once fulfilment works respective to the LOT is approved, Planning will be informed by Construction Department in order to get the general planning updated

Construction department of Client will approve the LOT completeness only after:

- No objection from QC/QS
- Real fulfillment of solutions for relevant NCRs are achieved.

Any other aspects related to completion and acceptance of works are prescribe in attachment [A6] Section III.

2.4 APPLICABLE NORMS AND STANDARDS

2.4.1 GENERAL

Achieve erection completion of firefighting systems- Unit 4 shall be proceed with respect to requirements as prescribes in chapter 3.

The Contractor has to complete and deliver all systems listed in chapter 2.4, in line with the project rules listed in the attachments and reference documentation as listed in chap. 13 and 14.

From the point of view of nuclear safety, the classification pursuant to Decree 430/2011 as follows:

- **SAFETY CLASS II / III / IV / NC**: according to Decree 430/2011
- **SEISMIC CLASS 1a:** Seismic resistance for preservation of full functionality is required up to the level of maximum design earthquake (SL-2) inclusive. The following manner of documentation is required (ref. PNM34080183 Q [14]):
  - seismic qualification type test for verification of functional capability and structural integrity of the equipment and / or
  - qualification by the method of analysis by calculation or on the basis of similarity with the already tested or assessed equipment.
- **SEISMIC CLASS 1b:** Seismic resistance for preservation of mechanical integrity (strength and hermetic nature) is required in accordance with the relevant strength standards and regulations. Partial disturbance of functional capability is possible only up to the level of maximum design earthquake (SL-2) inclusive. The following manner of documentation is required (ref. PNM34080183 Q [14]):
  - qualification by the method of analysis
  – by calculation or on the basis of similarity with the already tested or assessed equipment and / or
  - seismic qualification type test only for verification of structural integrity and hermetic tightness of the equipment (ref. PNM34080183 Q [14]).
- **SEISMIC CLASS 2a:** only verification of type design (general concept and conditions of seismic anchorage) of stability and anchorage of equipment is required (ref. PNM34080183 Q [14]).
- **SEISMIC CLASS 2b:** no special qualification documentation is required (ref. PNM34080183 Q [14])

Supplier shall comply with “Rules for Construction of Nuclear Facility Components – ASME Div.1 section III subsection ND 4000”.

Supplier shall consider and implement site-specific rules of Slovak Republic and regulations of the licensing authority (ÚJD – Slovak Nuclear Authority) and the additional technical requirements mandated by nuclear codes and standards, based on the safety-related importance of each component.

Requirement stated in Slovak laws and ÚJD decrees shall prevail over other standards mentioned in the present document.

It is supplier’s duty and responsibility to issue the documentation, perform works and tests in order to comply with Slovak Laws, National Standards and requirements of ÚJD.

The following laws, regulations and technical standards apply:

• ÚJD SR BNS II.3.3/2011	Metallurgical products and spare parts for Nuclear Power Plants
• ÚJD SR BNS II.5.1/2012	Welding of nuclear equipment, Principal requirements and rules
• ÚJD SR BNS II.5.2/2012	Inspection of welding and quality of welded joints of machine and technological components of WWER 440 nuclear power plants, Requirements

- ÚJD SR BNS II.5.3/2011 — Filler materials for welding of machine and technological components of nuclear installations, Technical requirements and selection rules
- STN EN 10204/2005 — Inspection certificates.

The Fabrication shall be fully compliant with all the above Laws, Regulations, Codes and Specifications.

Note that BNS regulations only apply to nuclear classified structures, piping and equipment.

Unless otherwise specified, the applicable edition for all technical code and standards is the latest available at the date of contract signature.

Any material and/or service, even not specifically mentioned in this specification or into relevant attachments, that are usually included in similar manufacturing and supply that are necessary to complete the works in accordance with all applicable laws, codes standards regulations and requirements, has to be considered included in the Supplier scope of work.

2.4.2 PIPING AND PRESSURE PARTS

All piping will be designed, realized, installed, inspected and tested according to Directive 2014/68/EU – PED Pressure Equipment Directive, category 3, while other equipment are rankedin category 4.

2.4.3 MACHINERY DESIGN SECURITY

Equipment shall be in compliance with following directives:

- Machinery directive 98/37/CE;
- Electromagnetic Compatibility Equipment Directive 89/336/CE;
- Low Voltage directive 73/23/CE;
- Equipment for use in potentially Explosive Atmospheres (ATEX) directive 94/9/EC (where applicable).

2.4.4 ELECTRICAL REGULATION

The design, construction, testing of all electrical components, equipment or materials shall comply with the latest version in force of the Standards listed in this document, ion its attachment and in general with all IEC recommendations. The supply shall be in accordance with Slovak Acts and Laws about safety and injury prevention in work ambient and standards for electrical installations in hazardous areas.

2.4.5 FIXED FIREFIGHTING SYSTEMS

The design, erection and supply shall conform to the latest editions and addenda of Standards, Codes and recommendations listed below.

- Regulation n° 169/2006 Coll. of Ministry of Interior of the Slovak Republic from March 10, 2006 (Specific characteristics of fixed and semi-fixed extinguishing equipment and on conditions of their operation and periodic inspections;
- NFPA 750;
- NFPA 15;
- NFPA 20;
- VDS 2109 – Water Spray Systems;

- EN 15004 parts 1, 2 and 5 – Gas extinguishing systems;
- EN 14520 Gaseus fire extinguishing systems
- Law 133/2013 of Slovak Republic -building materials;
- Decree No.162/2013 Coll. List of civil product groups and systems of parameters assessment
- Act 314 / 2001 of Slovak Republic – Fire protection.
- Decree No.508/2009 Coll. as amended on Safety and Health Protection at Work and on Safety of Technical Equipment

2.4.6 LEGISLATIVE REQUIREMENTS

The Contractor shall take into account legislation changes during execution of the contract. Modifications in Declaration of Fire structure shall be approved by the Owner.

a) Materials and products
The inbuilt materials or products used for repairs and completion of particular fire structure shall meet requirements as follow:
- are “Suitable building products” according to § 43f of the building law 50/1976 which is in compliance with the Law No 133/2013 Coll. as amended about the building products.
- The directions given by the Manufacturer of materials in terms of the building law 50/1976 §43g of 2nd paragraph have to be met during the assembly of building products.
- The parameters of all used materials are in compliance with the Decree of Ministry of Interior of Slovak republic No.94/2004 Coll. as amended which constitutes technical requirements for the fire protection during the construction works, and during the buildings use, and in compliance with related regulations and technical specifications.
- Meet the approved design requirements and specifications.

b) Assembly procedures
- The inbuilt materials shall be installed correctly according to the producer’s installation manual and conformity of all parts and components.
- The works shall be performed by staff trained in accordance with manufacturer’s rules for application of relevant fireproof materials.
- Conditions as stated in Declarations of fire structures which prove fire-technical properties for the inbuilt fire structures have to be fulfilled.
- Labelling with identification data according to a legislation and customer requirements shall be fulfilled.

2.4.7 ADDITIONAL FIRE PROTECTION REQUIREMENTS (SPECIFIED IN UJD DECISION 246/2008)

The Contractor shall consider the following binding conditions:

a. Accompanying technical documentation (ATD B- part refers to erecton)

The Contractor shall issue ATD that shall be in compliance with requirements as follow:

- it will be in compliance with the relevant rules PNM34080296 – Manual about structure and scope of Accompanying Technical Documentation

- Accompanying technical documentation fulfil the requirements of Decrees related
to a specific type of fire structure e.g.

The Contractor shall assure issuing of the Declaration of the fire structure which will meet requirements for particular fire structure as follow:

- Declaration of the fire structure meets requirements of annex No.3 to Decree of Slovak Ministry of interior No.94/2004 Coll. as amended.
- Effective achieved properties will be declared in the form "Declaration of fire structure" (see Annex "Declaration of fire safety") which will be included in particular package of the accompanying technical documentation.
- Classification of the fire structures will be in according to Annex "Declaration of fire safety" part "B. Classification of Fire structures"

a. "As constructed " and "As built" documentation

The contractor shall assure issuing of the "Red mark-up" and "As built" (by others) documentation in accordance with PMN34080144 - GENERAL RULES FOR CONTRACTORS FOR DOCUMENT SUBMISSION TO SE AND ENGINEERING PLAN & SCHEDULE PREPARATION and PNM34085692 - GUIDE FOR PREPARATION OF FINAL HANDOVER OF DOCUMENTATION COLLECTIONS.

b. Fire Database

The Contractor shall assure issuing of the database of the fire structures. All fire structures shall be mentioned in the excel table form "List ZH Construction" shown in the Annex "Declaration of fire safety" part "List ZH Construction".

2.4.8 OTHERS

- Act No. 264, 07/09/1999 of Slovak Republic - on technical requirements for products and on conformity assessment (Slovak Republic);
- Act 208 of Slovak Republic – Handling with electrical equipment and waste.
- Act 286/2009 Fluorinated greenhouse gases and on amendments to certain laws
- Slovak laws, rules and regulations as per par. 10 of PNM34080002[R7]
- Project Rules as per table List of Project Rules [R1]
- Codes, Regulations and Qualification specified in BD and DD relevant for each DPS
- Ethic Code of Slovanske Elektrarne [R9]

In case of conflict between the referenced specifications, codes or standards and this Specification, the later shall prevail.

Owner may appoint representatives to act on its behalf under this Contract, and in this event, Owner shall give notice to the Supplier of the name, duties and authorityof such representatives.

Owner has the right to check and verify, via its appointed representatives, the

Supplier's full observance of all the terms and conditions of this Contract, as well as the correct and timely execution by the Supplier of all Site activities necessary forthe execution of this Contract. Owner personnel, authorised for the purpose, will be therefore granted access at any moment to the workshop and the areas where Works are carried out in order to effect the checks and verifications described in this Contract.
Such checks and verifications, are to be carried out by Owner's Personnel, shall not release the Supplier from the obligations and liabilities inherent in the correct execution of the Works, nor from its obligations under the Contract, nor from those under applicable law. In the same way, such checks and verifications may not be invoked as a source of interference in the way the works and Site activities are performed, nor the way in which vehicles, machinery and materials are used, since such functions are exclusively to be carried out by the Supplier.

3. TECHNICAL REGULATION FOR EXECUTION

Slovak Log Book to fulfill for mechanical, civil and electrical work according to law 50/1976

3.1 MECHANICAL WORKS

For technical regulation for the execution of mechanical works refer to attachment [A6] Section I.

In addition please consider following additional requirement contained in this paragraphs.

3.1.1 PRESCRIPTIONS FOR PREFABRICATION AND ERECTION ACTIVITIES

All piping will be designed, realized, installed, inspected and tested according to Directive 2014/68/EU – PED Pressure Equipment Directive, category 3, while other equipment are ranked in category 4.

Piping routing is already developed in scope of Detail Design [M158] and also in 3D model (available on demand). In Nuclear Island (CS800/1-02) were carried out clashes resolution with contractor design coordinated by SE. Clash resolution was solved with all other technological and civil part of other contractors.

Low pressure water piping for DPS 4.57.02, 03 and 07, will be realized in galvanized carbon steel.
High and low pressure piping for water mist system – DPS 4.57.01 and piping for FM 200 -DPS4.57.05 will be made using TP316L as per Standard ASTM A312.

Piping for FM 200 system will be stainless steel TP316L as per ASTM A312.
For applicable piping classes refer to Attachment M152 - M154.
SE piping classes for stainless steel (SSxxxx) define the features of pipework for water mist. If the Supplier, due the special features of this technology, uses fittings that are not listed in that piping classes, he can propose its piping classes during detailed design, based on the SE ones.

For surface treatment shall be applied G22.

For details about piping supports refer to Attachment M156. Is not possible to anchor pipe with shooting nails or with hammer drive anchors, while chemical anchors are allowed only in case of qualified for environmental condition (temperature, radiation).

Inside the hermetic zone are prohibited to use aluminium or zinc surfaces of SSC.

All relevant activities to this technical specification are listed as follow:

- Erection works related to Classified Piping System and Equipment shall be executed as per PNM34088036 GENERAL TECHNICAL CONDITIONS FOR ASSEMBLY WELDING OF CLASSIFIED EQUIPMENT OF NUCLEAR PART OF POWER PLANT MOCHOVCE#VSEOBECNE TECHNICKE PODMINKY PRO MONTAZNI SVAROVANI VYBRANYCH ZARIZENI JADERNE CASTI 3. A 4. BLOKU JE MOCHOVCE and documents mentioned therefore.
- General Technical Conditions for Assembly Welding of Classified Equipment PNM34088036 and its supplementary instructions
- Storing the materials up to completion of the scope of works;

3.2 ELECTRICAL AND I&C WORKS

For technical regulation for the execution of electrical and I&C works refer to attachment [A7] Section I.

3.3 CIVIL WORKS

For technical regulation for the execution of civil works refer to attachment [A8] Technical specification for civil works.

The Contractor shall perform the following activities:

- Supply and erection of carbon steel and/or hot dip galvanized structures
- Supply and erection of anchoring plates drilled on masonry and/or reinforced concrete structures without liners;
- Supply and erection of anchoring plates welded on hermetic carbon steel liners,. Non hermetic carbon steel liners, stainless steel liners, steel structures, steel embedments
- Coating (including surface preparation) of steel structures, steel plates
- Sealing of penetrations and openings in mansonry and concrete walls and floors used by pipes, cables, cable trays, etc...

  When required by design sealing shall be fire proof.

  Fire resistance of sealing as per design (EI 90 class). Fire sealing is a fire structure and it shall follow national legislation requirements 94/2004. For identification of fire structure penetrations contractor shall use attachments C19 up to C51.

Above mentioned activities shall be performed in compliance with requirements brought by “Annex [8] - Technical specification for civil works” attached to present PTS (see chapter 16)

When applicable, Technological Procedure for Small plates PNM34084515 (attached to present PTS, chapter 15.3) shall be followed.

3.4 MANAGEMENT OF CHEMICALS

All material components supplied have to be approved for using in MO34 in accordance with document "Management of Chemicals for construction 3 & 4” MO34/MNA-190.03 - PNM34080067 Ref. [1].

Waste materials shall be managed according to document PNM34080087 as per Project Rules [R1] and documents mentioned therefore.

The supply of the items above is in scope of work of Contractor. All items shall be provided per specification included in Detail Design. Should any info be required, contractor shall address request for clarification to SE Engineering.

3.5 HANDLING AND STORAGE ACTIVITIES

Procedures for off-loading, storage, receiving, control, traceability and inspection of piping material supplied for fabrication and installation shall be worked out. In general, the following applies:

- storage of piping and piping equipment shall be under cover and protected against contact with the ground on elevated tonnage and protected against contact with salts or salty water.
- carbon steel and stainless steel components shall be segregated to avoid any cross contamination.
- all fittings and equipment shall be protected against damage during handling from client to fabrication yard and further to final installation plant. Especially focus shall be made to sealing surfaces, bevelled areas, and contact between different material qualities to avoid surface contamination. This also includes protection during erection phase in order to protect against
contamination from other activities on site.

3.5.1.1 WAREHOUSE STORAGE

(a) Owner reserves the right to delay the shipping of all or part of the Works deliverables. In this case the Supplier is committed to keeping the Works deliverables at its premises or at third party premises and to preserve it, in accordance with the Supplier's procedures, until approval for delivery is received. The Supplier shall also provide for adequate insurance to cover all risks related to warehouse storage.

(b) The first 3-month period of storage shall be without cost to Owner; after 3 months, except where already specified in the Contract for Work, Owner shall agree relevant compensation with the Supplier.

3.5.2 UNLOADING ON SITE

(a) The Supplier must carry out, upon arrival of the Works deliverables at the Site, an inspection, the result of which must be documented, in order to ascertain (i) the absence of damage, (ii) the presence of the required documentation, including the preservation instructions, and (iii) that the Works deliverables received correspond to the aforementioned documentation.

(b) Owner reserves the right to request the Supplier to execute tests and checks to verify that the preservation and transport activities, from the tests/trials in the workshop up to the arrival at the Site, have not damaged the Works deliverables.

(c) The unloading at the Site of the Works deliverables is carried out at the care and expense of the Supplier and under its exclusive responsibility. The Supplier, always under its management and responsibility, may use Owner's lifting equipment, where available, and with Owner's prior authorisation.

3.6 PROTECTION OF THE INSTALLED SYSTEMS

Take care and of all the equipment’s already installed at site shall be in Contractor scope respecting the following:

- All in/outlets shall be plugged/blanked. Flanges shall be blanked with oil resistant rubber gaskets and steel or water resistant plywood plate with galvanised bolts sufficient to provide mechanical protection and water/dust tight sealing, heavy plastic cap sealed and fixed is acceptable.

- All threaded openings shall be provided with steel caps or solid-shank steel plugs of metallurgy equal to the metallurgy of the component being capped or plugged. In no case shall non-metallic (for example, plastic) plugs be used.
- All openings that have been bevelled for welding shall be provided with closure designed to prevent entrance of foreign materials and damage to the bevel.
- Other types of equipment as instruments shall be protected with aluminium sheeted glass fibre cloth, min. 0.3 kg/m2 or equal,and sealed.

The above rules refer to temporary take care only. Necessary periodical survey to be carried out as per preservation maintenance check lists regulating quality assurance for nuclear installations (Act No. 541/2004 Coll. and Regulation of UJD SR No. 431/2011 Coll. [3]) is out of scope of this PTS.

4. MEASURING AND ACCOUNTING RULES

It's intended that preparation of following documentation is already included in Unit rate prices for relevant supply and erection activity:

- Red Mark up preparation, issuing and management (to be issued as per Project Rules attached to present PTS, chapter 14)
- ITP's protocol availability to achieve Pre Cost Test/Cos Test and HT
- Cable Revision Report according to 508/2009
- ATD "B" for each DPS
- As Constructed documentation
- Issuance of Engineering Field Disposition and Not conformity Report (to be issued as per Project Rules attached to present PTS, chapter 14);
- Issuance of Technologiocal Procedure, Inspection Test plan and Assembly Organization Plan (to be issued as per Project Rules attached to present PTS, chapter 14);
- Issuance of Fire Data Base, declaratiom of Fiore Structures and more in general compliance wity requirements brought by chapter 2.5.7
- Issuance of documents/compliance with QA/QC requirements (refer to chapter 7 and Project Rules, chapter 14).

4.1 MECHANICAL WORKS

For measuring and accouting rules of Unit rate basis Mechanical works refer to attachment [A6] section II.

In addition please consider following additional charge contained in following paragraphs.

4.1.1 PARTICULAR CHARGE PIPING (PAR. 60 – UNIT RATE WORKS)

In addition to "par. 60 – Unit Rate Works" of Attachment [A6] sect. II, also following activity shall be included in particular charge:

- Supply and installation of bolts, nuts and gaskets
- Pipeline pickling
- Internal sandblasting
- Supply, installation and dismantling of temporary items (eg. strainers using during flushing program)

- Hydraulic test activities, including, supply installation and dismantling of all needed temporary components to perform piping hydro test activities
- Scaffolding and all others equipment and tools necessary for erection works
- Any activities related to hydrotest (ie. blowing, cleaning ets.) as described in [A6] section II
- Flushing as per [A6] section II

4.1.2 DEMOLITION

The activity shall include the demolition of piping, steel structures, equipment and minor civil work with respect to Project Rules [R1] and documents mentioned therefore.

4.2 ELECTRICAL AND I&C WORKS

For measuring and accouting rules of Unit rate basis Electrical and I&C works refer to attachment [A7] section II.

4.3 CIVIL WORKS

Civil works required with present PTS shall be accounted as per measuramnent rules brought by “Annex [8] - Technical specification for civil works”, chapter 3, attached to present PTS (see chapter 16.3), where also additional charges are brought.

Charges, inclusion and exclusions mentioned in Annex [8] - Technical specification for civil works shall be applied.

4.4 OTHER

Scaffolding, and all others equipment and tools necessary for erection works shall be paid as for the related works.

The activity named “Extra works activities” on Price list shall be considered as on demand works.

5. ACCEPTANCE OF WORK

5.1 MECHANICAL WORKS

For acceptance of Mechanical works refer to attachment [A6] Section III

5.2 ELECTRICAL AND I&C WORKS

For acceptance of Mechanical works refer to attachment [A7] Section III

6. DOCUMENTATION

All documents shall be written in English language and, when required, in Slovak language too (for instance, Documents for end user and for Slovak authority supervision and/or approval).

Client release of Contractor's documents will not relieve the Contractor from any technical responsibility or any other responsibility that rises in the design and construction from mistakes, omissions, etc.

All deliverables shall include all references to design, construction, performance verification Standards, Codes, etc.

Submission of documents required but limited to follow: R[10] - PNM34080144

Typical EPS (for information only)

DOCUMENT TITLE	SENDING PURPOSE	DELIVERY TIME FROM CONTRACT AWARD DATE	DELIVERY WITH OFFER
PROGRAMMATIC DOCUMENTS			
Engineering Program and Schedule EPS	A	Note b)	Y
Integrated Safety Plan (as per Slovak laws)	A	Note b)	Y
Sub-suppliers List/Plan and program	A	Note b)	Y
Welders List	A	Note b)	Y
NTD operators List	A	Note b)	Y
Schedule for erection	A	Note a)	Y
Schedule of workshop and at site test and inspections	A	Note a)	Y
Inventory Report	A	Note b)	Y
Statement of compliance with applicable document, or a list of Deviations /Exceptions/ Clarifications	A	Note b)	Y
QUALITY SYSTEM DOCUMENTS			
Quality Assurance Plan	A	Note b)	Y
ITP (Inspection and Test Plan) in workshop and for site erection	A	Note a)	N
ITP prefabrication	A	Note a)	N
ATD database	A	Note b)	N
Accompanying Technical Documentation (ATD)	A	Note a)	N
Certificates of type tests or special tests already carried out (if any)	A	Note a)	N
Pre-assembly proposal (if any)	A	Note b)	N
TECHNICAL DOCUMENTS			
Technical Procedure for Erection	A	Note b)	N

Technological Procedure for supply and erection of steel structures	A	Note b)	N
Technological Procedures for supply and erection of drilled anchoring plates	A		
Technological Procedures for supply and erection of anchoring plates welded on liners	A		
Technological Procedures for supply and erection of anchoring plates welded on steel structures and steel embedments	A		
Technological Procedures for supply and erection of sealing and fire proof sealing of openings	A		
Inspection Test Plan for erection of steel structures,	A		
Inspection Test Plan for supply and erection of drilled anchoring plates	A		
Inspection Test Plan for supply and erection of anchoring plates welded on liners	A		
Inspection Test Plan for supply and erection of anchoring plates welded on steel structures and steel embedments	A		
Inspection Test Plan for supply and erection of sealing and fire proof sealing of openings	A		
Inspection Test Plan for coating	A		
Technical report on manufacturing process and facilities (if any)	A	Note b)	N
Welding book for prefabrication/erection	A	Note b)	N
Management Procedure for welding electrodes	A	Note b)	N
Assessement material	A	Note b)	N
NDE Procedure	A	Note b)	N
Post Weld Heat Treatment (PWHT) Procedure	A	Note b)	N
Procedure of Material incoming identification	A	Note b)	N
Cutting and Marking Procedure	A	Note b)	N
Painting Procedure (related to SoW)	A	Note b)	N

Piping anti-corrosion treatment repairs procedure	A	Note b)	N
Procedure of Pressure Test	A	Note b)	N
Welding repairing procedure	A	Note b)	N
Technical procedure for prefabrication and erection of temporary pipes for flushing	A	Note b)	N
Technological Procedure for scaffolding	A	Note b)	N
DESIGN DOCUMENTS			
Erection drawings	A	Note a)	N
Mark-up of nonconformities on shop drawings.	A	Note a)	N
Dossier of documentation to get authority approval – as and if required by Authorities	A	Note a)	N

Notes

a) Documentation to be made available to SE upon works completion.

b) Documentation to be consigned to Customer at least 10 days in advance of the starting of activities referred to therein.

Clarifications

The above reported Customer EPS shall be the contractual reference and the basis on which the Supplier shall develop its own detailed EPS, after order award.

The required delivery times shall in any case comply with the job time schedule defined in contract documentation.

EPS and all related documents shall be developed on the base of indication and proper document format that shall be provided by Customer before starting of the relevant supply activities.

Document Scope

A – For Approval: each document with high impact on the overall plant design and on which is necessary the approval of Customer before the manufacturing beginning

The scope of works includes the activities referred to component Nuclear Safety and seismic Classified. For each classified component (pipeline, supports, equipment, in line components) or group of components, it's requested to issue the relevant certificate dossier as required by Slovak Nuclear Laws.

7. QUALITY ASSURANCE AND QUALITY CONTROL REQUIREMENTS

7.1 QUALITY MANAGEMENT SYSTEM

The Contractor shall assure the implementation of a Quality Management System (QMS) in his own organization in compliance with ISO 9001:2008 Standard Quality Management System – Requirements and meeting the requirements set in this chapter. In addition to that Contractor shall meet within the Services applicable requirements of PNM34080002 MO34 Reference Quality Assurance Program.

The Contractor shall provide evidence to Owner on the suitable implementation of required QMS.

For works to be subcontracted, the Contractor shall select the suitable and applicable QMS requirements including those set forth in this paragraph. The Contractor shall request and verify the implementation of selected QMS requirements by its Sub- Contractors chosen among those who can ensure the fulfilment of such requirements.

For works to be subcontracted, the Contractor in his Proposal for specific works shall submit to the Owner a list of intended Sub- Contractor if any. The Owner reserves the right to approve or refuse any of proposed Sub- Contractor.

7.2 QMS DOCUMENTATION

The Contractor shall prepare and submit to Owner Quality Plan describing the application of its own QMS for his scope of the Services in compliance with PNM 34080056 Elaboration of Supply Quality Plan (SQP).

Requirements of SQP shall be transferred to the sub- Contractors of the Contractor, including approval of their SQP. The Contractor shall keep the records regarding Project rules hand over to sub Contractor's level.

The Contractor shall submit SQP to the Owner for approval within two (2) month after signature of the Contract but at latest before launching of the Services. SQPs of Sub- Contractors shall be submitted by Contractor to the Owner for review. SQPs of Sub- Contractors shall be approved by Contractor.

When realizing the Services Contractor shall follow then Project Rules prepared by Owner to cover and clarify the coordination, communication, responsibilities and procedures in areas where mutual understanding needs to be achieved. The project rules are listed in respective annex of PTS.

The Contractor shall develop appropriate procedures for management of supply. The Owner reserves his right to review and comment on specified project procedures at any phase of the project.

SQP and the Sub- Contractors' SQPs shall be controlled and updated, as necessary, to assure their continuing suitability and adequacy. Any change shall be clearly identified and described. All changes of SQP shall be approved by Owner and Contractor shall approve changes of Sub- Contractor's SQPs. SQPs of Contractor and Sub- Contractors shall be planned in Engineering Plan and Schedule (EPS) of the Owner.

The Owner reserves the Right to review and approve following procedures of Contractor's QMS applied on the Services:

- Management of documentation and reports

- Management of nonconformities

The Contractor shall have functional and certified QMS for execution of the Services complying with requirements of EN ISO 9001:2008 proved by:

- Quality Manual; and
- Certificate; and
- Supply Quality Plan

The Contractor undertakes to keep all documents relating to activities with impact on quality for the whole contract term in a way to prevent their damage, loss or destruction. Documents not handed over to the Owner shall be archived for 10 years after completion of delivery. The Contractor shall offer such documents to the Owner prior to their discarding.

7.3 QMS SURVEILLANCE

The Owner reserves the right to audit implementation of the QMS of Contractor and, where necessary, of its Sub- Contractors, through QMS audits or process audits at their premises their own organization and/or on MO34 site, and involving all documents relevant to the implementation of Services.

The Owner shall proceed to notify the Contractor of deficiencies pointed out, if any by the relevant report notify to Contractor identified nonconformities and areas for improvement, and to require implementation of appropriate corrective actions.

The Contractor and its Sub-Contractor shall enable Regulatory Authorities Inspectors to perform inspections and audits at all its premises.

The Contractor shall be responsible for the supervision and monitoring (through quality audits and other surveillance activities) on the work performed by its Sub-Contractors, to ensure that they comply with their own SQPs and with the Contract requirements. Upon request the Contractor shall allow the Owner to participate at Sub- Contractors'quality audits.

The Contractor shall, at Owner's request, arrange an unplanned audit at specified Sub- Contractor. This audit shall be held by Contractor or by Owner with Contractor participation. The Contractor shall ensure the completion and realization of corrective actions for non-conformities, which shall be raised during the unplanned audit performance.

The Contractor shall evaluate and select his Sub- Contractor based on their ability to meet requirements resulting from the Contract with the Owner. These contractual requirements shall be reflected in Contract with his Sub- Contractor including request for Sub- Contractor's QMS to be checked by the Contractor at execution of Services once during the term of the contract, but minimally once in two years during of the project of completion of NPP Mochovce units 3 and 4. The Owner reserves his right to participate or to directly perform audit at the Sub-Contractor with the participation of the Contractor.

The Contractor shall plan and perform internal audits pursuant to EN ISO 9001:2008 and EN ISO 19011:2011 aimed at verification of compliance between activities in the field of quality assurance and their results, and planned requirements. He shall verify and assess efficiency of his QMS. Internal audits shall be performed by employees with relevant qualification.

Contractor shall manage product nonconformities and on monthly base submit actual situation of product nonconformities solving together with appropriate

supporting documentation in accordance with Project rule PNM34080055 Control of product`s nonconformities.

7.4 QC REQUIREMENTS

7.4.1 ITP & ITP REPORTS

The Contractor for all inspection activities shall observe the procedure PNM34082337 - Management of ASSIK Software Application, Inspection and Test Plans and Inspection and test reports for Project MO34.

The Contractor shall prepare suitable Inspection and test Plans (ITP) including their detailed description, which cover all Inspections and tests which comes from design documentation, legislation, Individual Quality Assurance Programs (for existing classified equipment if applicable), Classified Equipment Quality Plans for classified equipment (for new classified equipment), existing Technical Conditions , applicable technical standards, etc. including inspections and tests carried out both on manufacturing activities and on site construction and erection activities needed to assure fulfilment of applicable requirements, unless otherwise agreed with Owner. In such case Incoming inspection shall be planned and performed upon presence of the Owner's representatives.

The Owner reserves the right to appoint Hold points and Witness points in the ITPs in of Contractor and Sub Contractors, as well as specification of inspection points of NRA supervision (ÚJD SR). ITP prepared by Contractor shall be delivered to the Owner for approval via CSMS for comments and specification Witness and Hold points specification.

The Contractor shall prepare ITP for erection via software application ASSIK MO34 before transmittal of ITP for approval to the Owner via Extranet.

The Contractor shall send data form of ITP created in software application ASSIK MO34 to the Owner.

The Contractor shall send to the Owner for comments and approval ITPs in terms defined in the Engineering plan and schedule (EPS). The form for developing ITP is specified in PNM34082337 - Management of ASSIK Software Application, Inspection and Test Plans and Inspection and test reports for Project MO34.

The Contractor shall prepare ITPs on the forms, which are part of the software application ASSIK MO34.

The Contractor shall prepare ITP reports for erection on the basis of agreed uniform form specified in in application ASSIK MO34.

The Contractor shall hand over continuously electronic form of the ITP reports and PDF forms to the Owner within 30 calendar days from the completion of the test.

The Contractor shall send to the Owner the status report on realization of inspections and tests in monthly intervals in electronic format specified by the Owner.

The Contractor 'sinspections performance shall be done by independent staff, that means different from those performing or directly managing contractual performance being subject of inspections and tests.

The Contractor shall notify the Owner 3 days before the date of its performance on site for inspection determined by the Owner as Hold points and Witness points.

The Contractor shall notify Owner for conformity check based on Atomic act No.541/2004 Coll. In compliance with Project rule PNM34080525.

7.4.2 ATD

The Contractor for all activities related to Accompanying Technical Documentation (ATD) shall observe the procedure PNM34080296 - Manual about structure and scope of accompanying technical documentation.

The Contractor shall prepare the database of accompanying technical documentation (construction/erection dossier) according to valid Slovak legislation, design documentation and applicable standards to be handed over to the Owner during the phase of supplies take over. The database of ATD is defined in procedure PNM34080296.The Contractor shall maintain and update this database of documentation according to change of input data continuously. The database as PNM document will be included in Contractor's Engineering and project Schedule (EPS). Activities connected with preparation and following approval of ATD are described in procedure PNM34080296 - Manual about structure and scope of accompanying technical documentation.

The Contractor shall prepare the accompanying documentation (construction/erection dossier) to be handed over to Owner. This dossier shall comply with all requirements specified on accompanying documentation according to valid Slovak legislation, design documentation and applicable standards. The requirements of procedure PNM34080296 shall be met when elaborating and submitting ATD.

For classified equipment, selected equipment and determined equipment shall be all records (technical solution, drawing and documentation linked to non-conformity) attached to the respective part of the accompanying technical documentation.

The Contractor shall submit the package of accompanying technical documentation after the completion of erection stage to the Owner for verification purposes in hard copy.

After the successful verification shall the Contractor hand over the electronic version for uploading into Owner application for documentation commenting to Owner Documents management center within 30 calendar days from the time of hard copy verification.

7.4.3 MONITORING AND MEASURING DEVICES

The Contractor shall define suitable and consistent processes and methods for the inspections, measurements and checks to be carried out during manufacturing, erection, construction and commissioning phases for the verification and validation of products conformity included into their Scope of Works.

In order to assure the suitability of measurement outputs, Contractor shall confirm that the devices used are fit for the measurements and checks to be carried out, have a suitable accuracy and are properly calibrated.

Calibration of devices shall be carried out against measurement standards traceable to national or international reference measurement standards.

In order to point out the above traceability, Contractor is requested to record on the Inspections and Tests Reports the following data:

- Reference data of used devices (Identification Number, type, accuracy, range)
- Identification Number of calibration reports
- Inspection or Test Procedure

In the calibration reports, in addition to the identification data of measurement standards used for the calibration (Identification Number, type, accuracy class, range), it also shall be recorded the identification of national or international standards as reference of the measurement chain. The above registration can be omitted if the calibration has been carried out by an accredited laboratory; in this case the accreditation logo shall be printed on the calibration report.

The calibration reports shall be inserted into the Manufacturing (accompanying technical documentation), in a dedicated section.

The Contractor is requested to transfer the above requirements to its sub-suppliers and sub Contractors involved in the implementation of the Scope of Works

8. GUARANTEES AND CONTRACTOR RESPONSIBILITY

8.1 SUPPLY GUARANTEES

Preparation and application of erection activities as described in chap.2.2 compliance to the data and the requirements of this specification (with relevant attachments) must be guaranteed.

Conformity will be verified by means of functional tests.

8.2 CONTRACTOR RESPONSIBILITY

The Contractor shall comply with all the requirements set forth in this specification and its related documents. Approval of drawings, specifications, procedures or test by the Purchaser shall in no way relieve the Contractor from these responsibilities. There shall be no deviations from this specification or its references without prior written approval from the Purchaser. Nothing in this specification shall relieve the Contractor of the responsibility for performing, in addition to the requirements of this specification, such analyses, tests, inspections and other activities which the Contractor considers necessary to ensure that the design, materials and workmanship are satisfactory for the service intended, or as are required by common usage, good practice or by applicable codes.

8.3 CONTRACTOR EXPERIENCE

The Contractor and its personnel shall have adequate experience in piping and mechanical installation works. This includes but it is not comprehensive:

- Pipes and supports,
- Vacuum systems installation,
- Installation of sensitive components within a very tight tolerance,
- All kind of in-line components,
- All kind of mechanical equipment for plants.
- All kind of electrical and I&C installation works

The Contractor shall demonstrate to have adequate experience in installation of equipment in compliance with:

- ASME III,
- ASME B31.1,
- European Directive 97/23/EC and in the Directive 2006/42/EC relative to pressure equipment.

In addition, it is required to have experience in:

- International projects, i.e. customer(s) and/or Contractor(s) from different countries, with all documentation being delivered in English,
- Construction sites with high occupational safety standards.

9. INSPECTIONS AND TESTS

The Contractor shall carry out all inspections and tests necessary to verify that the materials and services fulfil all the contract requirements. These inspections and tests shall include both those defined by the Contractor manufacturing and erection standards, and those required by the applicable codes and standards as defined in chap 3.4.1.

Pressure testing of all piping, components, tubing in connection with piping and equipment (whenever it is possible) for all systems of CI of NPP Mochovce Unit 3 and 4 as required by applicable codes, Slovak Laws, standards and engineering requirements is provided in the document:

- General Technical Conditions for Assembly Welding of Classified Equipment
- **EN 13480** Metal Industrial Piping
- **Directive 2014/68/EU – PED** Pressure Equipment Directive;

The procedure of Test and Inspection shall be written by contractor and subject to approval of Quality and Contruction Department)

The Contractor shall prepare appropriate documentation indicating the kind and extent of inspections and tests to be carried out on site, and commissioning, ITPs according par.3 DOCUMENTATION. These shall be submitted to Client and shall be enclosed in the offer as described in chapter 4.

The inspections and tests will be witnessed by Client and his Customer, or their representatives. Client and his Customer will select inspections and tests to be considered witness or hold points, on the basis of documentation.

Client reserves the right to require any additional inspection or test and to increase their extension prior the contract award, in order to fulfil his Customer requirements.

Certification shall be available for inspection by Client before shipment and handover to warehouse. Copy of certification shall be sent along with material.

10. PERFORMANCE GUARANTEES

To be specified in contract.

11. PENALTIES

To be specified in contract.

12. MODE OF DELIVERY

Mode of delivery of documentation is explained in chap. 3.1 and documents in attach. [G8]. All documents shall be provided both in English and Slovak language and shall be stamped by engineer registered to the Slovak chamber of civil engineers or hosting engineers with respect to PNM34085692- Guide for preparation of Final Handover Documentation Collections (ref. Project Rules [R1]).

All the documentation shall be elaborated by engineer with proven experience in the nuclear field. All the documents are to be provided both in source and pdf files. Documentation shall be submitted according to procedure PNM34080144 R[10].

Submitted documentation will be checked by SE and approved by SE using the official commenting process (CSMS). The outcome of the SE approval (Comment sheet) will be sent to Contractor via official transmittal.

The activation date of the contract will be considered as the date of sign the contract where will be formal handover of the existing systems or even a part of system to Contractor. From the date of formal handover till the Final Delivery Date, the systems (ref. to SoW) will be under Contractor responsibility.

Legal and logistic aspects will be defined at contractual level.

Handover will be formally carried out for each 'Written Request' (WR) by the following actions:

- Handover of systems and areas through dedicated site inspection.
- Handover of the "as is" documentation relevant for erection and belonging to old M29 job (welding books, logbooks, minor change registers, etc.)
- Transmission from Client to Contractor of the relevant Detail Design
- Client will provide all related documents including NCRs, DDMs and EFDs. \

13. SCHEDULE AND PRICE BREAKDOWN

To be specified in contract.

14. REFERENCE DOCUMENTS

Sequence No.	Identification No.	Document name
[R1]	PROJECT RULES	List of Project Rules
[R2]	PNM34085438	EFD – Engineering Field Disposition
[R3]	PNM34480826	Design Freeze Instruction
[R4]	PNM34080076	Expediting activities
[R5]	E041200033V_R02PO	General MO34 Layout

[R6]	E041200015T	Environmental Characteristic
[R7]	PNM34080002	REFERENCE QUALITY ASSURANCE PROGRAMME FOR UNITS 3 AND 4 IN MOCHOVCE NP
[R9]		SE - Code of Ethics
[R10]	PNM34080144	GENERAL RULES FOR CONTRACTORS FOR DOCUMENT SUBMISSION TO SE AND ENGINEERING PLAN & SCHEDULE PREPARATION#
[R11]	PNM34060089	CONSTRUCTION ORGANISATION PLAN
[R12]		NR SR Law No. 541/2004 Coll. „Atomic Law“
[R13]		ÚJD SR Decree No. 431/2011 Coll.
[R15]	PNM34082079	THE DATABASE OF TERMS & ACRONYMS

15. GENERAL DOCUMENTS

Due to the very heavy load note that all documents listed in this chapter will be given to Contractor via transmittal- including a large package of all related EFDs.

15.1 CONSTRUCTION AND DESIGN RULES

G2 PNM34161603 General design data & site conditions;
G.3.1 PNM34067290 AM NO 3 - ENVIRONMENTAL CHARACTERISTICS - SPECIFICATION
G.3.2.1 PNM34068408 AM NO 60 - COMMON DIESEL GENERATOR STATION OVERALL CHANGE - TECHNOLOGICAL PART - ACCOMPANYING TECHNICAL REPORT
G.3.2.2 PNM34633133 AM NO 60 - COMMON DIESEL GENERATOR STATION OVERALL CHANGE - TECHNOLOGICAL PART - ENVIRONMENTAL CHARACTERISTIC
G.3.3.1 PNM34632155 AM NO 91 - MODIFICATION OF ROOM A337 FIRE COMPARTMENT - ACCOMPANYING TECHNICAL REPORT
G.3.3.2 PNM34633171 AM NO 91 - MODIFICATION OF ROOM A337 FIRE COMPARTMENT - ENVIRONMENTAL CHARACTERISTIC
G.3.4.1 PNM34068351 AM NO 57 - COMMON DIESEL GENERATOR STATION OVERALL CHANGE - ACCOMPANYING TECHNICAL REPORT
G.3.4.2 PNM34068406 AM NO 57 - COMMON DIESEL GENERATOR STATION OVERALL CHANGE - CIVIL PART - ENVIRONMENTAL CHARACTERISTIC
G.3.5 PNM34632288 AM NO 69 - MODIFICATIONS OF CS 805/1-02. CS 806/1-03.04 CAUSED BY IMPACT OF BDA 0066 - ENVIRONMENTAL CHARACTERISTIC
G4 E041200018T_F Surface Treatment Systems in MO34;
G.4.1.1 PNM34632016 AM NO 67 - ADDITION OF THE ME06 PAINTING SYSTEM - ACCOMPANYING TECHNICAL REPORT
G.4.1.2 PNM34633107 AM NO 67 - ADDITION OF THE ME06 PAINTING SYSTEM - SURFACE TREATMENT SYSTEMS IN MO34
G5 E041200017T_F Colour Design;
G6 E041200016T_F Uniform Marking System;

G7 PNM34100017 Regulations for issuing Supplier Technical Documentation;
G8 E011000011U_F Process schematic diagram symbol library;
G9 E011000012U_F Electric schematic diagram Symbol library;
G10 PNM34080221 and PNM34082497_00 2 Years Spare Part List Form;
G11 E041200020T_F Chemical and physical features of applied media;
G12 PNM34080200 Guideline for Contractors for Complying with Requirements of Industrial Technical Safety Regulations during the Design, Fabrication, Erection and Commissioning of Components and Systems of Mochovce 3&4 NPP;
G13 PNM34481648 TECHNICAL SPECIFICATION OF LABELING, TAGGING AND COLOR BANDING OF MECHANICAL EQUIPMENT - CONVENTIONAL ISLAND
G14 PNM34080067 Management of Chemicals for construction 3&4#Manazment chemikalii pre dostavbu 3&4

15.2 MECHANICAL DOCUMENTS

BASIC DESIGN DOCUMENTS – DPS 4.57.01, 02, 03, 05 AND 07

Positions M1 – M80 not used.
M81. E041457A01T_E01F DPS 4.57.01 List of fire compartments (HÚ);
M81.1 PNM34068123-00 AM NO 49 - LOAD SEQUENCES MODIFICATION IN ESFAS - ACCOMPANYING TECHNICAL REPORT
M81.2.1 PNM34632157 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION UNIT 4 -ACCOMPANYING TECHNICAL REPORT
M81.2.2 PNM34633200 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION UNIT 4 - DPS 4.57.0 TECHNICAL REPORT
M82. E041457A02T_A01F DPS 4.57.01 Extract form equipment specification; details of SHZ electric boards and control cabinets (A);
M82.1.1 deleted
M82.1.2 PNM34633207 AM NO 92 - FIXED FIRE FIGHTING SYSTE MODIFICATION UNIT 4 - DPS 4.57.0 SPECIFICATIONS
M83. Not used;
M84. E041457A02T_B02F DPS 4.57.01 List of bulk material - cables;
M84.1.1 deleted
M84.1.2 deleted UNIT 4 - DPS 4.57.0 SPECIFICATIONS
M85. Omisses
M86. Omisses
M87. E041457A11V_003F DPS 4.57.01 CS 490/1-02 – floor -5.50;
M87.1.1 deleted
M87.1.2 PNM34633290-01 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION UNIT 4 - DPS 4.57.0 LAYOUTS
M88. Omisses
M89. Omisses
M90. E041457A11V_006F DPS 4.57.01 CS 490/1-02 - floor -4.80;
M90.1.1 deleted
M90.1.2 deleted
M91. Omisses

M92. Omisses
M93. E041457A11V_009F DPS 4.57.01 CS 800/1-02 – floor -6.50;
M93.1.1 deleted
M93.1.2 deleted
M94. E041457A11V_010F DPS 4.57.01 CS 800/1-02 – floor -2.80;
M94.1.1 deleted
M94.1.2 deleted
M95. Omisses
M96. E041457A11V_012F DPS 4.57.01 CS 800/1-02 – floor 14.10;
M96.1.1 deleted
M96.1.2 deleted
M97. E041457A11V_013F DPS 4.57.01 CS 800/1-02 – floor 18.90;
M97.1.1 deleted
M97.1.2 deleted
M98. Omisses
M99. Not used;
M100. E041457A11V_016F DPS 4.57.01 CS 805/1-02 – floor -5.70;
M100.1.1 deleted
M100.1.2 deleted
UNIT 4 - DPS 4.57.0 LAYOUTS
M101. E041457A11V_017F DPS 4.57.01 CS 806/1-04 - floor -7.00;
M101.1.1 deleted
M101.1.2 deleted
M102. E041457A11V_018F DPS 4.57.01 CS 805/1-02 - floor -3.60;
M102.1.1 deleted
M102.1.2 deleted
M103. E041457A11V_019F DPS 4.57.01 CS 806/1-04 - floor -3.60;
M103.1.1 deleted
M103. deleted
M104. E041457A11V_020F DPS 4.57.01 CS 805/1-02 - floor 0.00;
M104.1.1 deleted
M104.1.2 deleted
M105. E041457A11V_021F DPS 4.57.01 CS 806/1-04 - floor 0.00;
M105.1.1 deleted
M105.1.2 deleted
M106. E041457A11V_022F DPS 4.57.01 CS 805/1-02 - floor +5.40;
M106.1.1 deleted
M106.1.2 deleted
M107. E041457A11V_023F DPS 4.57.01 CS 806/1-04 - floor +5.40;
M107.1.1 deleted
M107.1.2 deleted
M108. E041457A11V_024F DPS 4.57.01 CS 805/1-02 - floor +9.60;
M108.1.1 deleted
M108.1.2 deleted
M109.1.2 deleted
M109.1.2 deleted
M110. E041457A11V_026F DPS 4.57.01 CS 805/1-02 - floor +14.70;
M110.1.1 deleted
M110.1.2 deleted
M111. E041457A11V_027F DPS 4.57.01 CS 806/1-04 - floor +14.70;
M111.1.1 deleted
M112. PNM34144044 DPS 4.57.01 CS 805/1-02 -floor +18.60;
M112.1.2 deleted
M113. E041457A11V_029F DPS 4.57.01 CS 805/1-02 - floor +22.50;

M113.1.1 deleted
UNIT 4 - ACCOMPANYING TECHNICAL REPORT
M113.1.2 deleted
M114. Omisses
M115. Omisses
M116. Omisses
M117. Omisses
M118. Omisses
M119. E041457B01T_B01F DPS 4.57.02 List of connection points;
M120. E041457B01T_E01F DPS 4.57.02 List of fire compartments (HÚ);
M121. E041457B02T_A01F DPS 4.57.02 Equipment specification;
M122. Not used;
M123. E041457B02T_B02F DPS 4.57.02 List of bulk material - cables;
M124. E041457B10U_003F DPS 4.57.02 Diagram of transformers extinguishing system;
M125. E041457B11V_003F DPS 4.57.02 CS 510/1-02 – transformers layout;
M126. E041457B11V_004F DPS 4.57.02 CS 510/1-02 – transformers sections;
M127. E041457C01T_B01F DPS 4.57.02 List of connection points;
M128. E041457C01T_E01F DPS 4.57.03 List of fire compartments (HÚ);
M129. E041457C02T_A01F DPS 4.57.03 Equipment specification;
M130. Not used;
M131. E041457C02T_B02F DPS 4.57.03 List of bulk material - cables;
M132. E041457C10U_003F DPS 4.57.03 TG lube oil tank extinguishing system;
M133. E041457C11V_003F DPS 4.57.03 CS 490/1-02 – floor +3,80;
M134. E041457C11V_004F DPS 4.57.03 CS 490/1-02 – longitudinal section;
M135. E041457C11V_005F DPS 4.57.03 CS 490/1-02 - sections;
M136. E041457E01T_E01F DPS 4.57.05 List of fire compartments (HÚ);
M137. E041457E02T_A01F DPS 4.57.05 Equipment specification;
M138. Not used;
M139. E041457E02T_B02F DPS 4.57.05 List of bulk material- cables;
M140. E041457E10U_003F DPS 4.57.05 Diagram gas extinguishing system in room A301/1;
M141. E041457E11V_003F DPS 4.57.05 CS 801/1-02 – floor +10,50;
M142. E041457E13U_003F DPS 4.57.05 Diagram of gas extinguishing system in room
A301/1 – seismic resistant;
M143. E041457E14U_003F DPS 4.57.05 Diagram of gas extinguishing system in room
A301/1 – safety classes.
M144. E041457G01T_B01F DPS 4.57.07 List of connection points;
M144.1.1 deleted
M144.1.2 PNM34633293-01 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION
UNIT 4 - DPS 4.57.0 TECHNICAL REPORT
M145. E041457G02T_A01F DPS 4.57.07 Equipment specification;
M146. Not used;
M147. E041457G10U_003F DPS 4.57.07 Diagram of water spray curtain on floor +14,70;
M147.1.1 deleted
M147.1.2 PNM34633294 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION
UNIT 4 - DPS 4.57.0 PIPING DIAGRAMS
M148. E041457G11V_003F DPS 4.57.07 CS 805/1-02 – floor +14,70;
M149. E041457G11V_004F DPS 4.57.07 CS 805/1-02 – sections

M150. E041457G13U_003F DPS 4.57.07 Diagram of water spray curtain on floor +14,70 – seismic resistance.
M150.1.1 deleted
M150.1.2 PNM34633295-01 AM NO 92 - FIXED FIRE FIGHTING

Typical drawings and specifications

M151. PNM34161601 Fluid list;
M152. PNM34140335 Piping class guidelines;
M153. PNM34140338 piping class collection;
M154. PNM34195788 Piping classes
M155. PNM34140424 Technical specification for thermal insulation of technological equipment and pipelines in EMO34 Conventional Island;
M156. 999SR886-04 Piping standards supports;
M157. PNM34196514 Typical quick acting valve–pneumatic type (DPS 4.57.01) (A)
M158. PNM34196500 ENGINEERING PROGRAM AND SCHEDULE OF JOB M29

15.3 CIVIL DOCUMENTS

C1. E041626A03V CS 490/1-02 Turbine hall architectural part – cable ducts (A);
C2. E041626A09V CS 490/1-02 Turbine hall architectural part – section (A);
C3. E041649A29V CS 800/1-02 Reactor building architectural part –longitudinal section (A);
C4. E041649A30V CS 800/1-02 Reactor building architectural part – cross section (A);
C5. E041655A36V CS 805/1-02 Lengthwise building architectural part – cross section (A);
C5.1.1 PNM34632020-01 AM NO 69 - MODIFICATIONS OF CS 805/1-02. CS 806/1-03.04 CAUSED BY IMPACT OF BDA 0066 - ATR
C5.1.2 PNM34632133-00 AM NO 69 - MODIFICATIONS OF CS 805/1-02. CS 806/1-03.04 - CS805/1-02 CROSS SECTION
C7. PNM34082028 Guide for Interface Management between Civil and Technological Part;
C8. Not used;
C9. E041655A42V CS 805/1-02 Lengthwise building architectural part – longitudinal section (Unit 4);
C10. E041657A09V CS 806/1-04 Cross side building section 3 architecturalpart – longitudinal section;
C11. E041657A15V CS 806/1-04 Cross side building section 3 architectural part – cross section.

PNM34063302 rev. 03 TOPOGRAPHICAL ACTIVITIES FOR MO34 PROJECT
PNM34080183 rev.02 REQUIREMENTS ON EVALUATION OF SEISMIC RESISTANCE OF STRUCTURES, SYSTEM AND COMPONENTS OF MOCHOVCE NPP

PNM34080292 rev. 04 TOPOGRAPHICAL ACTIVITIES FOR MO34

Technical condition for classified equipment and coating

PNM34088048 rev.12 TECHNICAL CONDITIONS OF SURFACE TREATMENT OF METAL SURFACES OF MACHINE-TECHNOLOGICAL COMPONENTS OF NPP MOCHOVCE MO34

Technical condition, specification and requirements for plates and classified components

PNM34088036 rev.12 OF	GENERAL TECHNICAL CONDITIONS FOR ASSEMBLY WELDING CLASSIFIED EQUIPMENT OF NUCLEAR PART OF POWER PLANT MOCHOVCE
PNM34088675 rev.09	ASSEMBLY OF SPACER PLATES ON HERMETIC AND NON-HERMETIC CLADDING
PNM34318011 rev.04	CS 800/1-02_GENERAL ANCHORING DETAILS_DDR
PNM34088017 rev. 03	CARBON AND STAINLESS STEEL LINERS OF WALLS, CEILINGS AND FLOORS OF NPP MOCHOVCE
PNM34085439 rev. 03	INSTALLATION TOLLERANCES - GENERAL LIMITS
PNM34084515 rev. 06	DESIGN AND INSTALLATION RULES FOR TECHNOLOGICAL SUPPLY PLATES
PNM34339911 rev.03	APPLICABILITY – QUALIFICATION ASSESSMENT REPORT FOR CEMENT GROUTING SUBSTANCES PAGEL UNDER CONDITIONS OF NPP MOCHOVCE, UNIT 3&4

EXAMPLE DRAWINGS

Drawings listed in this sub paragraph shall be considered only as example drawings.
Their aim of example drawings is to provide examples of activity required by present Purchase Technical Specification. Even if such drawings are only indicative, the Bidder declares to consider them sufficient to provide the Offer

Example drawings of plates

PNM34085482	SMALL PLATES WITH ANCHOR BAR FOR NUCLEAR AREA SEISMIC CLASSIFIED ELECTRICAL SUPPORTS (CS800/1-02)
PNM34085483	SMALL PLATES WITH ANCHOR BAR FOR NUCLEAR AREA SEISMIC MECHANICAL SUPPORTS (CS800/1-02)
PNM34085506	SMALL PLATES FOR NUCLEAR AREA SEISMIC CLASSIFIED IMPULSE PIPES SUPPORT (CS800/1-02)
PNM34085507	SMALL PLATES WITH ANCHOR BAR FOR NUCLEAR AREA SEISMIC CLASSIFIED IMPULSE PIPES SUPPORTS (CS800/1-02)
PNM34083258	ANCHOR PLATES FOR NUCLEAR AREA TYPICAL SEISMIC CLASSIFIED ELECTRICAL SUPPORTS(CS 800/1-02
PNM34084527	PLATES WHIT ANCHOR BAR FOR NUCLEAR AREA SEISMIC CLASSIFIED ELECTRICAL SUPPORTS (CS 800/1-02)

Example of geosurvey protocol, and documentation required for plates supply and erection

Example of as constructed geosurvey of plates
Example of comulative file foer progress evaluation of plates

15.4 ELECTRICAL DOCUMENTS

COMMON DOCUMENTATION OF ELECTRICAL PART

E1.	E041200005T_F Principles of cabling;
E1.1	PNM34067092 AM NO19 - DESIGN CHANGE RELEVANT TO CABLES - ACCOMPANYING AMENDMENT REPORT
E2.	E041200006T_F Principles of cabling and earthling deliveries partition
E3.	E041200007T_F EMC concept;
E3.1	PNM34067033 AM NO12 - EMC CONCEPT - ACCOMPANYING TECHNICAL REPORT
E4.	E041300301T_R1 Common documentation of electrical part – Technical report;
E4.1.1	PNM34068123 AM NO 49 - LOAD SEQUENCES MODIFICATION IN ESFAS - ACCOMPANYING TECHNICAL REPORT
E4.1.2	PNM34068128 AMNO49-LOAD SEQUENCER AND DIESELGENERATOR LOADING CAPABILITY MODIFICATION - TR
E4.2	PNM34067564 AM NO 48 - IMPLEMENTATION OF STRESS TESTS MEASURES INTO MO34 BD - COMMON DOCUMENTATION OF THE ELECTRICAL PART- TR
E4.3.1	PNM34068354 AM NO 56 - CHANGES IN MO34 ELECTRICAL SYSTEM (MV AND LV) - ACCOMPANYIN TECHNICAL REPORT
E4.3.2	PNM34068356 AM NO 56 - CHANGES IN MO34 ELECTRICAL SYSTEM (MV AND LV) - TECHNICAL REPORT
E4.4.1	PNM34068408 AM NO 60 - COMMON DIESEL GENERATOR STATION OVERALL CHANGE - TECHNOLOGICAL PART - ACCOMPANYING TECHNICAL REPORT
E4.4.2	PNM34633123 AM NO 60 - COMMON DIESEL GENERATOR STATION OVERALL CHANGE - TECHNOLOGICAL PART - TECHNICAL REPORT
E4.5.1	PNM34632073 AM NO 66 - MODIFICATION OF PS 3.25 - LIST OF DOCUMENTS
E4.5.2	PNM34632074 AM NO 66 - MODIFICATION OF PS 3.25 - ACCOMPANYING TECHNICAL REPORT
E4.5.3	PNM34632100 AM NO 66 - MODIFICATION OF PS 3.25 - TECHNICAL REPORT - COMMON DOCUMENTATION OF THE ELECTRICAL PART
E5.	Not used
E6.	E041300322V_F General diagram of auxiliary power supply system - Unit 4;
E6.1	PNM34067566 AM NO 48 - IMPLEMENTATION OF STRESS TESTS MEASURES INTO MO34 BD - GENERAL DIAGRAM OF AUXILIARY POWER SUPPLY SYSTEM - UNIT 4
E7.	E041300401T_F Common documentation of switchboards
E8.	E041300402T_F Common documentation of type schemes of control and automatics of the electrical part - Technical Report
E8.1.1	deleted
E8.1.2	PNM34068130 AM NO49 - LOAD SEQUENCER AND DG LOADING CAPABILITY MODIFICATION-COMM DOC OF TYPE SCHEMES OF CTRL AND AUT OF THE EL PART-TR
E8.2	PNM34067574 AM NO 48 - IMPLEMENTATION OF STRESS TESTS

MEASURES INTO MO34 BD - COM. DOC. OF TYPE SCHEMES OF CONTROL AND AUT. OF THE EL. PART - TR

E8.3.1 deleted

E8.3.2 PNM34068359 AM NO 56 - CHEMES OF CONTROL AND AUTOMATICS OF EL. PART-TR

E8.4.1 deleted

E8.4.2 deleted

E8.4.3 PNM34632114 AM NO 66 - MODIFICATION OF PS 3.25 - COMMON DOCUMENTATION OF TSO AND AUTOMATICS OF THE ELECTRICAL PART - TR

E9. E041300403V_F Common doc of type schemes of Control and Automatics of the el. Part.

E9.1 PNM34067165 AM NO24 - DISPLACEMENT OF FAN MOTORS - COMMON DOC.OF TYPE SCHEMES OF CONTROL AND AUTOMATICS OF THE EL. PART

E9.2.1 deleted

E9.2.2 PNM34068131 AM NO49-LOAD SEQUENCER AND DG LOADING CAPABILITY MODIFICATION-COMM DOC.OF TYPE SCHEMES OF CTRL AND AUT OF THE EL.PART

E9.3 PNM34068121 AM NO 48 - IMPLEMENTATION OF STRESS TESTS MEASURES INTO MO34 BD - COMM DOC.OF TYPE SCHEMES OF CONTROL AND AUTOMATICS OF THE EL. PART

E9.4.1 deleted

E9.4.2 PNM34068360 AM NO 56-CHANGES IN MO34 ELECTRICAL SYSTEM (MV AND LV)-COMMON DOC.OF TYPE SCHEMES OF CONTROL AND AUTOMATICS OF THE EL. PART

E9.5.1 deleted

E9.5.2 deleted

E9.5.3 PNM34632116 AM NO 66 - MODIFICATION OF PS 3.25 - COMMON DOC.OF TSO AND AUTOMATICS OF THE EL. PART

E10. ---------- Formats example for the electrical equipment data base.

BASIC DESIGN DOCUMENTS – DPS 4.57.08

Positions from E11 to E14 not used.

E15. E041457H02T_F Specification (DPS 4.57.08);

E16. E041457H03T List of supplied loads of PS 4.57;

EXTINGUISHING EQUIPMENT FOR DGS - ACCOMPANYING TECHNICAL REPORT

EXTINGUISHING EQUIPMENT FOR DGS - LIST OF SUPPLIED LOADS OF PS

E16.2.1 PNM34632157 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION UNIT 4 - ACCOMPANYING TECHNICAL REPORT

E16.2.2 PNM34633296 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION UNIT 4 - LIST OF SUPPLIED LOADS OF PS 4.57

E17. E041457H01T_F Technical Report;

E17.1.1 deleted

EXTINGUISHING EQUIPMENT FOR DGS - DPS 4.57.08 TECHNICAL REPORT

E18. E041457H10V_F General one-line diagram of auxiliary power supply system of PS 4.57 (U).

E18.1.1 PNM34633196 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION UNIT 4 - SINGLE LIN DIAGRAM OF SWITCHBOARD 4BMG01

E18.1.2 PNM34633197 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION UNIT 4 - SINGLE LIN DIAGRAM OF SWITCHBOARD 4BMH01

E18.1.3 PNM34633198 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION

	UNIT 4 - SINGLE LIN DIAGRAM OF SWITCHBOARD 4BRG01
E18.1.4	PNM34633199 AM NO 92 - FIXED FIRE FIGHTING SYSTEM MODIFICATION UNIT 4 - SINGLE LIN DIAGRAM OF SWITCHBOARD 4BRH01

TYPICAL DRAWINGS AND SPECIFICATIONS

E19.	PNM34130535 Low Voltage Motors;
E20.	PNM34130052 Grounding System;
E21.	PNM34130053 Main/Secondary Raceway Supports;
E22.	PNM34096013 NI. UNIT8. FIRE-STOPPING SOLUTIONS FOR CABLING#NI. 8.BLOK. PROTIPOZIARNE RIESENIA PRE KABELAZ#000;
E23.	PNM34130055 Main/Secondary Raceways;
E24.	PNM34130056 Communication System;
E25.	PNM34082443 GENERAL REQUIREMENTS FOR CONTRACTORS SUPPLYING POWER, CONTROL AND SIGNAL CABLES FOR MO34;
E26.	Not used;
E27.	Not used.

ADDITIONAL DOCUMENTATION FOR ELECTRICAL PART

E28.	PNM3409600 NI. CI. UNIT8. RULES FOR CCC ACTIVITIES - RULES FOR COMPLEX CABLE LAYING
E29.	PNM34096001 NI. CI. UNIT8. MAIN/SECONDARY CABLE RACEWAYS CODING
E30.	PNM34090143 BASIC CABLE LIBRARY NI
E31.	PNM34130058 CABLE TYPE LIST
E32.	PNM34090149 METHODICAL INSTRUCTIONS FOR PROVIDING OF INPUT DATA BY EACh SUPPLIER-INSTRUCTION MANUAL FOR EXCHANGE CABLE TABLE FOR PACKAGES
E33.	PNM34090148- METHODICAL INSTRUCTIONS FOR PROVIDING OF INPUT DATA BY EACH SUPPLIER-EXCHANGE CABLE TABLE FOR PACKAGES
E34.	PNM34090189 METHODICAL INSTRUCTIONS FOR PROVIDING OF INPUT DATA BY EACH SUPPLIER EXCHANGE TABLE FOR HCP

I&C DOCUMENTS

IC1.	PNM34110955 Field instrumentation Technical conditions;
IC2.	PNM34110050 Auxiliary systems general control requirements;
IC3.	Not used
IC4.	Omitted
IC5.	Not used;
IC6.	Omitted
IC7.	Not used;
IC8.	E041408K34V_F I&C for alternator, power outlets and auxiliary - Unit 4 (A).
IC9.	PNM34110703 Typical secondary electrical hook-up for process instrumentation.
IC10.	PNM34067257 Amendment No.0030 IEC classification
Q11	PNM34130479 Qualification specification cables (U);
Q12	PNM34111068 Qualification specification field instruments;
Q13	E041200014T_F Requirements for Technological Equipment and Civil Structures resistance against seismic events;
Q13.1	PNM34067002 AM NO1 - DESIGN MODIFICATIONS FOR LONG-TERM ESW MANAGEMENT STRATEGY AFTER AN EARTHQUAKE- ACCOMPANYING TECHNICAL REPORT
Q14	PNM34080183-02e Requirements on evaluation of seismic resistance of

structures, systems and components of Mochovce NPP;

Q15 E072000334T_F0 CS 490/1-02 Smoothed floor response spectra;
Q16 E072000322T_F0 CS 800/1-02 Smoothed floor response spectra;
Q17 E072200324T_F0 CS 801/1-02 Smoothed floor response spectra;
Q18 E072000326T_F0 CS 805/1-02 Smoothed floor response spectra;
Q19 E072000328T_F0 CS 806/1-03,04 Smoothed floor response spectra;
Q20 PNM34080180-01E Methodology for elaboration and updating of proof documentation of MO34 mechanical equipment.
Q21 PNM34080296 Manual about structure and scope of accompanying technical documentation;
Q22 MO34/MNA820.08_E Guide for unified preparation and processing Quality Plans, Influence Analysis and Revisions original QAIP of Classified Equipment -2 Stage.
Q23 PNM34082030 Methodology for complex qualification of structures, systems and components assurance of Mochovce NPP Unit 3 and 4#METODIKA PRE ZABEZPECENIE KOMPLEXNEJ KVALIFIKACIE KONSTRUKCII, SYSTEMOV A KOMPONENTOV JE MOCHOVCE 3. A 4. BLOK"
Q24 PNM34082026 Qualification specification for MO34 equipment
Q25 PNM34080194 Uniform Preparation and Elaboration of Quality Plans and Analysis of MO34 NPP Classified Equipment Impacts
Q26 PNM34088036 GENERAL TECHNICAL CONDITIONS FOR ASSEMBLY WELDING OF CLASSIFIED EQUIPMENT OF NUCLEAR PART OF POWER PLANT MOCHOVCE Unit 3 and 4
Q27 PNM34088381 GENERAL TECHNICAL REQUIREMENTS ON SPECIAL FITTINGS FOR NPP#VSEOBECNÉ TECHNICKÉ POZADAVKY NA ARMATURY PRO ZARÍZENÍ A POTRUBÍ JE
Q28 PNM34085058 Application of requirements of Act No.90/1998 Coll. on construction products#APLIKACIA POZIADAVIEK ZAK.C. 90/1998 Z.Z. O STAVEB.VYROBKOCH ZNENI NESKORSICH PREDPISOV A VYHL.MVRR SR C.558/2009 Z.Z. V ZNENI VYHL.MDVRR SR C.451/2011 Z.Z.

15.5 FIRE PROTECTION

C19. E041200101T Fire Protection Design - Technical Report - Common Part

Fire Protection Design - CS 490/1-02 Turbine Hall for 2nd Power Block

C20. E041200122T_001F CS 490/1-02 - Technical Report
C21. E041200123V_C01F CS 490/1-02 PLAN -5,50
C22. E041200123V_C02F CS 490/1-02 CABLE DUCTS
C23. E041200123V_C03F CS 490/1-02 PLAN 0,00
C24. E041200123V_C04F CS 490/1-02 PLAN +3,80 +4,80
C25. E041200123V_C05F CS 490/1-02 PLAN +9,60

Fire Protection Design - CS 800/1-02 Reactor Building of HVB 2

C26. E041200147T_A01R01P1 CS 800/1-02 - Technical Report
C27. E041200148V_C01R01 CS 800/1-02 PLAN -6,500
C28. E041200148V_C02R01 CS 800/1-02 PLAN -2,800
C29. E041200148V_C03R01 CS 800/1-02 PLAN 0,000
C30. E041200148V_C04R01 CS 800/1-02 PLAN +3,000
C31. E041200148V_C05R01 CS 800/1-02 PLAN +6,000
C32. E041200148V_C06R01 CS 800/1-02 PLAN +10,500
C33. E041200148V_C07R01 CS 800/1-02 PLAN +14,100
C34. E041200148V_C08R01 CS 800/1-02 PLAN +18,900
C35. E041200148V_C09R01 CS 800/1-02 PLAN +29,100

C36. E041200148V_C10R01 CS 800/1-02 PLAN VIEW OF THE ROOF

Fire Protection - Electrical building CS 805/1-02, 806/1-03, 806/1-04

C37. E041200155T_A01F CS 805/1-02, 806/1-03, 806/1-04 - Technical Report
C38. E041200156V_C01F CS 805/1-02, 806/1-03, 806/1-04 PLAN -8,40 -7,95
C39. E041200156V_C02F CS 805/1-02, 806/1-03, 806/1-04 PLAN -6,40 -5,70
C40. E041200156V_C03R01A0 CS 805/1-02, 806/1-03, 806/1-04 PLAN -3,60
C41. E041200156V_C04R01A0 CS 805/1-02, 806/1-03, 806/1-04 PLAN 0,00
C42. E041200156V_C05R01 CS 805/1-02, 806/1-03, 806/1-04 PLAN +5,40
C43. E041200156V_C06R01A0 CS 805/1-02, 806/1-03, 806/1-04 PLAN +9,60
C44. E041200156V_C07F CS 805/1-02, 806/1-03, 806/1-04 PLAN +14,70
C45. E041200156V_C08F CS 805/1-02, 806/1-03, 806/1-04 PLAN +18,60
C46. E041200156V_C09F CS 805/1-02, 806/1-03, 806/1-04 PLAN +22,50
C47. E041200156V_C10F CS 805/1-02, 806/1-03, 806/1-04 PLAN +26,75
C48. E041200156V_C11F CS 805/1-02, 806/1-03, 806/1-04 PLAN +31,00
C49. E041200156V_C12R01A0 CS 805/1-02, 806/1-03, 806/1-04 PLAN +35,50
C50. E041200156V_C13F CS 805/1-02, 806/1-03, 806/1-04 PLAN +39,50 +40,05
C51. E041200156V_C14F CS 805/1-02, 806/1-03, 806/1-04 PLAN OF ROOF

16 LIST OF ANNEXES

Sequence No.	Identification No.	Document name
[A1]	N/A	BOQ
[A2]	PNM34198737	Valvitalia Line List#
[A3]	PNM34196931	Valvitalia Electrical Equipment List#
[A3.1]	PNM34196660	Valvitalia Valve List
[A4]	PNM34198738	Valvitalial Support List#
[A5]	PNM34196789	Valvitalia Fluid List#
[A6]	PNM34142911	Technical Book for Mechanical Works (ref. Job M48A)
[A7]	N/A	Technical Specification for Electrical & Instrumentation Works
[A8]	N/A	Technical specification for civil works