NEK
Nuklearna elektrarna Krško
Vrbina 12
8270 Krško

TECHNICAL SPECIFICATION

OSC DEA Main Fuel Oil Tank

KRŠKO NUCLEAR POWER PLANT

SP – G3036

Revision 1

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AUGMENTED QUALITY

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TABLE OF CONTENTS

Section	Title Description	Page
1.0	**PURPOSE and SCOPE**	**1**
1.1	*Purpose*	*1*
1.2	*Scope of Supply*	*1*
2.0	**DEFINITIONS AND ABBREVIATIONS**	**2**
2.1	*Definitions*	*2*
3.0	**CODES STANDARDS AND REGULATORY REQUIREMENTS**	**2**
4.0	**SUPPLEMENTAL DATA**	**3**
5.0	**DOCUMENT SUBMITTAL**	**3**
5.1	*Documentation Required with the Proposal*	*4*
5.2	*Hazardous liquids handling plan*	*4*
5.3	*Detail Design Drawing (s)*	*4*
5.4	*Document submittal schedule*	*4*
6.0	**DESIGN REQUIREMENTS AND DESIGN INPUTS**	**5**
6.1	*General requirements*	*5*
6.2	*Design Conditions:*	*5*
7.0	**PERFORMANCE REQUIREMENTS**	**7**
8.0	**MATERIAL REQUIREMENTS**	**7**
9.0	**FABRICATION AND ASSEMBLY**	**8**
10.0	**INSPECTION AND TESTS**	**8**
11.0	**ITEM QUALIFICATION**	**9**
11.1	*Safety Classification*	*9*
11.2	*Seismic qualification*	*9*
11.3	*Environmental Qualification*	*9*
11.4	*Design life*	*9*
12.0	**CLEANING**	**9**
13.0	**CORROSION PROTECTION / COATING**	**9**
14.0	**MARKING AND IDENTIFICATION**	**10**
15.0	**PACKAGING, HANDLING AND STORAGE**	**10**
16.0	**NONCONFORMING MATERIALS**	**10**

17.0 RECORDS 11

18.0 OTHER REQUIREMENTS 11

19.0 RIGHT OF ACCESS 11

20.0 QA PROGRAM REQUIREMENTS 11

21.0 SPECIAL HANDLING 12

22.0 SHELF LIFE 12

23.0 10CFR21 REPORTING (For US supplied equipment only) 12

24.0 COMMERCIAL GRADE DEDICATION 12

25.0 VENDOR DOCUMENTATION REQUIREMENTS 12

25.1 Certificate of Conformance/Compliance 12

26.0 NEK PROPRIETY DATA 12

27.0 NON-CONFORMANCE REPORTS 13

28.0 REPAIR RECORDS 13

29.0 SOURCE INSPECTION / SURVEILLANCE NOTIFICATION 13

30.0 SHIPPING REQUIREMENTS 13

31.0 DELIVERY SCHEDULE 13

32.0 HOLD POINTS 14

33.0 VENDOR TECHNICAL MANUAL AND REGISTERED UPDATES 14

34.0 TRAINING 14

35.0 ATTACHMENTS 14

1.0 PURPOSE and SCOPE

1.1 Purpose

This technical specification defines requirements for design, shop fabrication, inspection, testing, cleaning and painting as well as packaging, shipping and installation of horizontal double wall above ground diesel fuel oil storage tank of 20m^3 volume.

Tank has NEK Tag No. DO900TNK-001 and is shown on the outline DWG SS-312-626, provided in Attachment [4].

Tank will be located in a vault, below grade el. 96.200 (tank center line el. 97.500).

Tank is classified as Seismic Category 1, Non Safety Related however Augmented Quality and may conform to the Eurocode, Section 3 entitled "Design of steel structures", and Section 8 entitled "Design of steel structures for earthquake resistance component".

The design of the tank shall follow the Slovenian Standard SIST EN 12285-2:2005 entitled "Workshop fabricated steel tanks- Part 2: Horizontal cylindrical single skin and double skin tanks for the aboveground storage of flammable and non-flammable water polluting liquids". Consideration of decree is mandatory and required by NEK (Nuclear Power Plant Krško).

1.2 Scope of Supply

1.2.1 The scope of supply shall include, but not be limited to the following:

[1] Horizontal, double wall, aboveground diesel fuel oil storage tank, carbon steel, total volume 20 m^3, atmospheric, design temperature 66 °C, seismic category I. Tank shall be complete, with all required connections according to SS-312-626, exterior coating, accessories, and a 1-1/2 inch flame arrestor, for field installation by others.
[2] Support saddles with seismic restraint straps and any shell reinforcement, as required.
[3] Check (Foot) valves on fuel oil transfer pump suction and water draw- off pipe.
[4] Internal suction pipes and water draw-off pipe for emptying tank for cleaning and maintenance.
[5] Bracing of internal piping, as required for restraining seismic loads.
[6] Internal ladder, as needed.
[7] External ladder and podium to access equipment installed on top of the tank
[8] Temporary plugs, caps or closures for nozzles during leak testing and shipping.
[9] Any required hold down straps and/or shell reinforcements for tank supporting system.
[10] Materials and procedures for the field repair of any damage to the tank coating that occurs during shipping or installation.
[11] Foundation loads for all tanks. Anchor bolts shall be arranged so that the load is evenly distributed, or provision is made in the design for uneven distribution, considering the usual tolerances of the anchor bolt and hole location.
[12] Qualified anchor bolts for seismic design, which shall be part of HILTI program and of Category I type i.e. type HST3 (only M12 is Category I), HSL or HAD.
[13] Design analysis, which shall qualify the tank for applicable static and seismic loads.
[14] Shipment and unloading at NEK site
[15] Installation into the vault
[16] All documentation required by this Technical specification

1.2.2 Supplier is fully responsible for proper sizing, design, materials, quality assurance, testing, packing, shipping and technical support during installation, and commissioning

2.0 DEFINITIONS AND ABBREVIATIONS

2.1 Definitions

CPR	Compressor
DEA	Diesel generator unit
E&DC	Engineering and Design Change
ESD	Engineering Service Division
FAT	Factory acceptance test
NEK	Nuklearna elektrarna Krško (Nuclear Power Plant Krško)
OEM	Original Equipment Manufacturer
OSC	Operational Support Center
QA	Quality Assurance

3.0 CODES STANDARDS AND REGULATORY REQUIREMENTS

All supplied equipment shall be tested and certified for use in EU. i.e. each component shall be CE certified, as applicable.

3.1 Slovenian basic technical legislation:

[1] GZ Gradbeni zakon (Uradni list RS, št. 61/2017)
[2] Uredba o skladiščenju nevarnih tekočin v nepremičnih skladiščnih posodah (Uradni list RS, št. 104/09, 29/10 in 105/10)
[3] EPA 0881-III: Zakon o splošni varnosti proizvodov (ZSVP-1) (Uradni list RS, št. 101/03)
[4] EPA 0250-II: Zakon o kemikalijah (Zkem-C) (Uradni list RS, št. 9/11)

3.2 Slovenian harmonized technical rules for the structural design of construction works in the EU, Eurocodes:

[1] Section 0: EN 1990: (Eurocode 0) Basis of structural design + Slovenian National Annex.
[2] Section 1: EN 1991: (Eurocode 1) Actions on structures + Slovenian National Annex.
[3] Section 3: EN 1993-1-1: (Eurocode 3) Design of steel structures + Slovenian National Annex.
[4] Section 8: EN 1998-1: (Eurocode 8) Design of structures for earthquake resistance structures + Slovenian National Annex.
[5] SIST EN 12285-2:2005, Workshop fabricated steel tanks- Part 2: Horizontal cylindrical single skin and double skin tanks for the aboveground storage of flammable and non-flammable water polluting inputs
[6] Tank has to meet requirements of Slovenian Regulation of Uradni List RS, št. 104/2009 z dne 18.12.2009 entitled “Regulation on the storage of hazardous liquids in fixed storage tanks"
[7] SIST EN 10025-2:2004, Hot rolled products of non-alloy structural steels — Technical delivery conditions
[8] SIST EN 10051:2012, Continuously hot-rolled uncoated plate, sheet and strip of on-alloy and alloy steels — Tolerances on dimensions and shape.
[9] SIST EN ISO 9606.1:2013, Qualification testing of welders. Fusion welding. Steels.
[10] SIST EN ISO 15607:2004, Specification and qualification of welding procedures for metallic materials - General rules
[11] EN ISO 15609-1:2004, Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding.

[12] SIST EN ISO 15614-1:2017, Specification and qualification of welding procedures for metallic materials -- Welding procedure test -- Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys
[13] SIST EN 10204:2004, Metallic products — Types of inspection documents.
[14] SIST EN ISO 898–1:2013, Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1: Bolts, screws and studs.
[15] SIST EN ISO 8501–1:2007, Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness — Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings

3.3 American National Standards Institute (ANSI):

[1] B16.5, “Pipe Flanges and Flanged Fittings”, 2009 Edition
[2] B16.9 "Factory-Made Wrought Steel Buttwelding Fittings, 2009 Edition
[3] B16.11, “Forged Steel Fittings, Socket-Welding and Threaded”, 2009 Edition
[4] B16.25 - "Buttwelding Ends, 1997 Edition
[5] B36.10 - "Welded and Seamless Wrought Steel Pipe, 2004 Edition

Where the above referenced codes and standards contain design recommendations in addition to specification requirements, these recommendations shall be considered and implemented.

In the event of any conflict between codes or this specification, the more stringent requirement shall apply.

4.0 SUPPLEMENTAL DATA

Supplemental data to this specification is available in section 35.0 and shall be considered as part of this specification.

5.0 DOCUMENT SUBMITTAL

All design documents (drawings and calculations) shall be delivered to Purchaser for review and acceptance prior to manufacturing.

All documents and or records required in this specification shall be sent to Purchaser before the tank shipment from the Suppliers facility.

All additional documents and/or records not specified herein but required in the Purchase order and agreed upon in the Contract shall be submitted before the tank shipment from the Suppliers facility.

One copy of each requested document shall be submitted in a common electronic format i.e. pdf, doc, jpg, tiff etc… All drawings shall be submitted in pdf and dwg file formats.

3D CAD drawings of the tank shall be provided in order to incorporate it into the overall building 3D model.

5.1 Documentation Required with the Proposal

Information to be provided with the Proposal shall include at least the following:

a) A list of the SUPPLIER/SUBCONTRACTOR'S design, fabrication, testing and inspection facilities, and capabilities.
b) All deviations or exceptions to this Specification shall be identified through Attachment [2] Equipment Specification Exceptions form.
c) Reproducible outline and detail drawings of the equipment.
d) Completion and return of Tank specification sheet provided in Attachment [1].
e) List of materials of construction
f) List of subsupplier/sub-subcontractors.
g) Description of the packing for equipment and spare parts.
h) Tank dimensions and liquid capacities to:
    - Overflow point
    - Normal full tank level.
i) Estimated empty, operating, and hydrostatic test weights.
j) Preliminary calculations of thickness, nozzle schedules, and seismic effects.
k) Preliminary fabrication and inspection plan
l) QA Manual

5.2 Hazardous liquids handling plan

The Supplier shall submit the Hazadous liquids handling plan in Slovene language upon delivery of the tank. The document shall be entitled: "Načrt ravnanja z nevarnimi tekočinami – tank DO900TNK-001". The content of the document shall provide the description of all measures taken to prevent fuel oil leakage or uncontrolled leak into the environment, as well as how to handle such incident. The plan shall be fully in compliance with 3.0 [2].

5.3 Detail Design Drawing (s)

The Supplier shall submit a 3D CAD model and complete set of Detail Design Drawings showing all details of the tank to PURCHASER for approval. The 3D CAD model and drawings shall be completed enough to permit engineering review of the design to ensure compliance with this Technical Specification.

Included shall be the information contained fabrication weld locations, joint configuration details, references to weld procedures, and references to inspection procedures for each joint and/or weld application.

5.4 Document submittal schedule

All design documents (drawings and calculations) shall be delivered to Purchaser for review and acceptance prior to manufacturing.

All documents and or records required in this specification shall be sent to Purchaser before the tank(s) shipment from the Suppliers facility.

Any additional documents and/or records, not specified herein, but required in the Purchase order and agreed upon in the Contract, shall be submitted before the tank shipment from the Suppliers facility.

6.0 DESIGN REQUIREMENTS AND DESIGN INPUTS

Design, fabrication, testing, and installation shall be fully in compliance with Slovenian and EU legislation.

6.1 General requirements

VENDOR shall provide design calculations for NEK for review and approval.

These calculations shall prove adequate design at operating, seismic, and environmental conditions defined in this specification. The calculation shall include the following data and results:

a) Nozzle deflections at pipe nozzle interference, during normal and occasional loading conditions (translations Δ x, Δ y, Δ z and rotation Δ x, Δ y, Δ z)
b) Equipment geometric parameters

6.2 Design Conditions:

6.2.1 Service conditions, including pressure, temperature, maximum inlet and outlet flows are defined in the tank specification sheets. Tank is located above the ground in a vault at el. 96.200.

6.2.2 To insure the structural integrity of this tank during the seismic event, the VENDOR shall design tank, legs, saddles, and supports for seismic loads according to Floor Response Spectra provided in Attachment [3].

6.2.3 The floor response spectra accelerations shall be considered as being applied at the point of attachment of the tank to the floor in all directions. The influence of stored liquid on seismic response of the tank shall be considered.

The tank is passive Seismic Category I component and shall be qualified for integrity alone. Structural integrity may be checked by (1) analysis satisfying the stress criteria according to applicable construction code, or (2) by tests showing that the Tank retains its structural integrity under the simulated test environment. The VENDOR shall demonstrate the ability of the equipment to meet these requirements. Applicable pages from OSC Seismic Analysis 1056-NA-L-PZI-3/1-A1 are provided in of this Specification for use by the VENDOR for qualification.

6.2.4 The Supplier shall evaluate the effects of the pipe nozzle loads on the tank. The SUPPLIER shall assure that all external connections will withstand maximum anticipated forces and moments on the nozzles during plant loading conditions according to the **Table 1**.

		Plant Loading Conditions	
Forces and Moments	**Origin of Load**	**Normal**	**Occasional**
F-Axial Force (kips)	a	±0.20Dt	±0.20Dt
	b	±0.03Dt	±0.10Dt
	a+b	±0.23Dt	±0.30Dt
V-Shear Force (kips)	a	$0.20D^{3/2}t$	$0.20D^{3/2}t$
	b	$0.03D^{3/2}t$	$0.10D^{3/2}t$
	a+b	$0.23D^{3/2}t$	$0.30D^{3/2}t$
M-Resultant Moment (ft-kips)	a	$1.3D^2t$	$1.3D^2t$
	b	$0.2D^2t$	$0.7D^2t$
	a+b	$1.5D^2t$	$2.0D^2t$

Table 1: Maximum pipe nozzle loads on the tank

a - Effect of restrained thermal flexibility of pipeline

b - Effect of weight, sustained loads, and occasional loads as specified in the Design Specification

F - Axial force acting along the pipe centerline at pipe-nozzle interface (kips)

V - Shear force acting along any radial direction of pipe at pipe-nozzle interface (kips)

M - Resultant moment acting at pipe-nozzle interface, obtained by square root of the sum of squares method (ft-kips)

Mathematically

$$M = \sqrt{M_x{}^2 + M_y{}^2 + M_z^2}$$

Mx, My and Mz are moments acting along three perpendicular axes

D - Pipe outside diameter (inches)

t - Pipe nominal thickness (inches)

Tank connecting pipe sizes, with related schedule and connection types, are defined on drawing SS-312-626.

Pipe rupture and jet forces are not provided in **Table 1**.

6.2.5 Deadweight loads shall be calculated by the VENDOR.

6.2.6 Lifting lugs shall be provided for transportation and installation purposes. Supports, where noted in the drawings, shall be furnished.

6.2.7 Ladders, manholes, scaffolding, and handrails, shall be provided in such a manner that all equipment installed on the tank is accessible from a normal standing position. The final a

6.2.8 The Supplier shall design and supply all necessary support saddles with seismic restraint straps and any shell reinforcements.

The loading imposed on the supports shall be a combination of the deadweight, nozzle and seismic loadings. All supports shall be anchored with anchor bolted to the floor. Sizing and arrangement of anchor bolts shall be based on a bolt material with a yield stress of 36000 psi (248 N/mm2) at 70 °F (21.1 °C). Stress levels in supports and bolting shall be within the limitations of SIST EN (EuroCode). The minimum compression strength of concrete for the support conditions shall be 2845 psi (19.6 N/mm2). The compressive stress on the concrete foundation due to the support loadings shall not exceed 861.3 psi (5.83 N/mm2) based on the allowable strength.

7.0 PERFORMANCE REQUIREMENTS

The performance requirements for the Fuel Oil Storage Tank covered by this Technical Specification are identified in the Tank data sheet in Attachment [1].

8.0 MATERIAL REQUIREMENTS

Design ambient temperature is -12 °C. Material thickness shall be determined by the design criteria, however the minimum thickness shall be 1/4” inch (6 mm). A corrosion allowance of 1/16 inch shall be added to the minimum wall thickness required by the applicable design code for all carbon steel tanks.

The tank shall be constructed of carbon steel material, as follows:

- Structural steel A36
- Plate A283 Gr.C
- Piping A106 Gr.B
- Pipe fittings A105 / A234 Gr.WPB
- Flanges A105, 150LB, ANSI B16.5
  (SWRF for flanges ≤ 2”, WNRF for flanges >2”)
- Foot valve Bronze, Carbo or Stainless steel

European substitute materials are:

- Material No. 1.0144 Gr. S275J2 for ASTM A 36,
- Material No. 1.0116 Gr. S325J2 for ASTM 283,
- Material No. 1.0425 Gr. P265GH for ASTM A 106
- Material No. 1.0501 Gr. C35 for ASTM A 105

Notes:

a) NEK reference piping specification is SP-G375A with spec. sheet 15A-1.
b) Flanges shall be per standard ANSI B16.5.

The Contractor shall be fully responsible for final material selection and their procurement specification.

9.0 FABRICATION AND ASSEMBLY

The Fuel Oil Storage Tank has to be fully fabricated in a workshop in accordance with the SIST EN 12285-1:2003.

Supplier's shall use internal standards and procedures, which were proven satisfactory in the past and meet applicable code requirements.

The plate edges shall be visually examined for laminations. All plates identified with such faults shall be deemed unsuitable for fabrication of the tank.

All plates shall be formed to the required curvature over the full width or length of the plate as might be applicable. The manufacturer shall ensure that there is continuity of curvature at the longitudinal butt welds.

Welded joints shall be in accordance with the SIST EN 12285-1:2003. For inner skin and outer skin shall be applied square butt joint.

All internal attachments shall be continuously welded.

Welding procedures shall be in accordance with EN ISO 15607:2003, EN ISO 15609-1:2004, EN ISO 15614-1:2004+A2:2012 and welders' qualifications shall be in accordance with EN ISO 9606-1:2014.

The Fuel Oil Storage Tank shall be prepared for shipping in accordance with requirements given in item 30.

10.0 INSPECTION AND TESTS

Inspection and testing shall be performed in accordance with the SIST EN 12285- 1:2003. The Contractor shall meet the test and inspection requirements of design documents.

The following tests shall be carried out in the manufacturer's workshop:

a) The weld shall be inspected visually
b) Pressure testing (acc.to SIST EN 12285-1:2003)
c) Testing of internal and external coating (acc.to Technical Specification SP-A3001 rev.0)

The SUPPLIER shall submit records and reports for all tests and inspections required by this Specification and Supplier's Quality Inspection and Test plan. These records and reports shall be prepared promptly after each test or inspection completion and shall be collected all together as a package available for review. A certified reproducible copy of all records and reports shall be transmitted to the PURCHASER prior to shipment of tank to the site.

11.0 ITEM QUALIFICATION

11.1 Safety Classification

The Fuel Oil Storage Tank is classified as Non Safety Related Augmented Quality equipment.

The Operating Safety Centre is classified as Non Safety Related building, however tank shall meet Seismic Category I requirements.

11.2 Seismic qualification

DO900TNK-001 is Seismic category I equipment. Earthquake design shall comply with Specification SP-S702, Seismic Analysis, Testing and Documentation and OSC Seismic Analysis 1056-NA-L-PZI-3/1-A1 with applicable FRS figures shown in Attachment [3]. The equipment shall be designed and manufactured in accordance with referenced standards, design requirements and design inputs defined in Section 6.0 and manufactures standards approved by purchaser.

11.3 Environmental Qualification

Tank shall be design for indoor installation:

- air temperature: -12°C to 40°C
- humidity up to 100%
- Fluid is fuel oil

The altitude does not exceed 200 m.

11.4 Design life

The equipment shall have a design life of 40 years with routine parts replacement as identified by the Vendor.
A list of all components that cannot meet the above requirement, shall be provided. A complete service plan, for any such component shall be provided, including replacement parts, shelf life of the such spare parts, frequency of change-out, etc…

12.0 CLEANING

Cleaning shall be performed according to supplier's standard procedure.

The final interior visual inspection report shall be issued in order to assure that tank interior is free of any foreign materials.

13.0 CORROSION PROTECTION / COATING

Corrosion protection and coating shall be performed according to Technical Specification SP-A3001 rev.0 "Requirements for anticorrosion protection of Fuel Oil Tank(s)".

14.0 MARKING AND IDENTIFICATION

Tank shall be marked using a durable label, which shall be corrosion resistant and resistant to fuel oil. The label shall be fixed to the tank on a manhole, or close to it, The label shall contain the following information:

- Name and address of manufacturer
- Year of manufacture
- Nominal diameter and nominal height, in meters.
- Net Working and Maximum capacity in m3.
- Serial number of a tank
- Code of Design
- Type of coatings
- Mass of empty tank
- Type of leak detection liquid (when supplied)
- Equipment Tag Number

Separate items, such as: nuts, bolts, and gaskets shall be identified by tags bearing a description and number of the part.

15.0 PACKAGING, HANDLING AND STORAGE

Packaging, handling and storage shall be performed in accordance with the SIST EN 12285-1:2003 Annex A - “Transport, storage and installation procedure”.

16.0 NONCONFORMING MATERIALS

Nonconformance with specification requirements, and applicable codes and standards invoked by this Specification will not be accepted until approved by the PURCHASER.

When such a condition exists, SUPPLIER shall initiate a Nonconformance Report (NCR) using the SUPPLIER’s standard nonconformance document, which identifies the nonconformance and the SUPPLIER’s proposed disposition.

The SUPPLIER shall:

a) Segregate the nonconformance item to prevent any further processing which may result in a change of the nonconformance as identified.
b) Make the NCR available to the responsible PURCHASER inspector for review to ensure the nonconformance is completely identified and accurately stated.
c) Transmit NCR with recommended disposition to the PURCHASER in an expeditious manner. The SUPPLIER shall provide technical justification for the recommended dispositions.

The requirements of the specification are mandatory. No deviations are acceptable without the prior consent of the PURCHASER.

17.0 RECORDS

Records shall be managed and maintained according to the requirement of Supplier's Quality Assurance program.

A record system shall be established and maintained by the Supplier to provide documentary evidence of the quality of items and activities affecting quality. Quality Assurance records shall include results of reviews, inspections, test, audits, monitoring of work performance and material analysis.

Records shall at a minimum identify Purchaser's name, order number, inspection and data recorder, data inspection that was performed, type of observation, procedures used, results, acceptability and action taken with deficiencies noted. Record of inspection shall also include identity of drawings and procedures utilized along with the revision level.

All records issued by Supplier or Sub-supplier, relevant for the contract, shall be available for review to the Purchaser and Owner representative.

18.0 OTHER REQUIREMENTS

The Supplier shall guarantee that materials used in the construction of the specified equipment are new and free from all defects.

The Supplier shall guarantee that the workmanship complies with all referenced Codes, Standards, and this Technical Specification.

Defects in material or workmanship that appear shall be repaired or the specified equipment shall be replaced at the Supplier's option and as approved by the Purchaser without cost to the Purchaser.

Any additional requirements and/or exceptions imposed beyond this specification requirements during biding, negotiating and contracting process shall be identified as change to this specification and brought to the attention of the NEK ESD – Design and Modification Project Manager for resolution concurrence and/or approval.

19.0 RIGHT OF ACCESS

The Purchaser/Owner shall have the right of access to the Supplier's facilities and access to records relevant for the contract for the purpose of inspecting, auditing, and witnessing.

20.0 QA PROGRAM REQUIREMENTS

All services and items requested in this technical specification shall be provided and performed in accordance with a Supplier's Quality Assurance Program compatible with ISO 9001 or equivalent and the following parts of NEK's QS-610 rev.1 Generic quality assurance program requirements: 1.1, 1.2, 1.6, 1.7, 3, 4.1, 4.2, 4.2.1-4.2.4, 4.3.1-4.3.9, 4.4.1-4.4.7,4.4.9, 4.5, 4.6, 4.7.1-4.7.4, 4.8 - 4.14, 4.15.1, 4.15.3-4.15.7, 4.16-4.18.

The CONTRACTOR shall submit with Proposal one controlled copy of its QA Manual proposed for the scope of work to be performed for the PURCHASER's review and acceptance.

The SUPPLIER shall ensure that its subcontractors meet applicable requirements of this Specification. QA Program shall apply to all activities affecting the quality of supplied equipment, materials, and services.

The CONTRACTOR shall retain full responsibility to perform QA function in all activities and his responsibility for QA implementation cannot be transferred to others or reduced in any way.

21.0 SPECIAL HANDLING

The Supplier shall specify special handling requirements during transportation and storage.
A detailed special handling procedure shall be provided to NEK in such case..

The Supplier shall also specify any special requirements necessary to maintain equipment warranties.

22.0 SHELF LIFE

All spare parts and consumables delivered shall have at least half of the remaining shelf life.

Supplier shall provide shelf life data and any special storage requirements for all items on the recommended spare parts.

23.0 10CFR21 REPORTING (For US supplied equipment only)

N/A.

24.0 COMMERCIAL GRADE DEDICATION

N/A.

25.0 VENDOR DOCUMENTATION REQUIREMENTS

Documents shall be submitted, as requested in 5.0

The final release of all documentation requested for delivery per this specification shall be submitted in one (1) paper reproducible copies and one (1) electronic version in pdf.

25.1 Certificate of Conformance/Compliance

A Certificate of Conformance/Compliance shall be submitted by the Supplier stating that the equipment is in conformance with the requirements of this specification. The Supplier and its Sub-Suppliers shall provide the Purchasers Quality Assurance personnel in writing that all referenced standards, codes and procedures have been compiled with.

Applicable part numbers and other item identification, qualification reports and the Purchase Order number shall be references by the certification.

26.0 NEK PROPRIETY DATA

NEK has a proprietary interest in all drawings, designs, specifications, documents' information or know-how which may be furnished pursuant contract execution and in any know-how improvement, discovery or invention which may be made, developed or conceived in the performance of work hereunder or which may arise or result therefrom (hereinafter collectively referred to as the "Information"). All such information shall be considered proprietary of the NEK. The right to use of all such Information shall be

transmitted to the contractor only for its personal use and shall be entirely restricted to the performance of the contract and subject to the confidentially provision.

27.0 NON-CONFORMANCE REPORTS

The Supplier shall issue a nonconformance report for any deviation that violates environmental qualification, interchangeability, design, operating parameters, or any other request per this specification during procurement, manufacturing, testing and commissioning of equipment per this specification. Such report shall have technical justification for nonconformance resolution dispositions and be submitted to NEK for approval prior to continuation of activities.

Any disposition, which cannot be returned to acceptable conditions, specified in approved drawing or specification, shall be specifically approved and accepted by NEK, prior to the shipment of equipment.

28.0 REPAIR RECORDS

Production repair records shall be included in the final quality release documentation. As a minimum, following information shall be provided in each of those:

a) Summary of repair/refurbishment work that has been performed on the equipment
b) Brief root cause analysis
c) Details about any "special process" used during repairs
d) A list of replacement parts installed in the repaired equipment

29.0 SOURCE INSPECTION / SURVEILLANCE NOTIFICATION

The contractor shall provide access to Contractor's plant facilities and records pertaining to the purchase order for the purpose of planning and performing source inspection/surveillance activities.

Inspections or examinations performed by NEK representatives or designated representatives do not relieve the Contractor of its responsibility to meet the requirements of this specification and purchase order.

30.0 SHIPPING REQUIREMENTS

Vendor shall be responsible for packaging and shipping of equipment to NPP Krško site.

The tank should be placed on the suitable trailer in such a manner to prevent movement and damage to surface coating.

The PURCHASER's authorized source inspectors have the right to hold shipment, if purchase order requirements are not met.

All final documentation shall be sent directly to PURCHASER.

31.0 DELIVERY SCHEDULE

Items shall be delivered within four moths upon signing the contract.

32.0 HOLD POINTS

The Supplier shall submit detailed manufacturing, testing and inspection plan for the NEK review and approval. Plans shall be approved by all parties prior to any manufacturing activities.

Predetermined hold or notification points require receipt of notification at least twenty (20) working days in advance of the scheduled time of performance. The following hold points for which prior notification is required are mandatory:

a) Final equipment assembly
b) Factory Acceptance/Performance Tests
c) Shipping release

The supplier shall not proceed beyond the hold or witness point without written approval from NEK, when such point is due according to the approved production plan.

33.0 VENDOR TECHNICAL MANUAL AND REGISTERED UPDATES

The SUPPLIER shall furnish vendor technical manual with all necessary information for operation and maintenance, updated specific data and equipment(s) drawings.

The SUPPLIER shall also provide drawings for all components and related equipment with a list of components, appertaining “part numbers” and their materials as part of the manual together with the list of recommended spare parts.

Manual shall be provided to the NEK for review before final issue and delivery. Preliminary versions shall be provided in electronic format only.

Final versions shall be furnished in four hard copies and appropriate electronic version.

34.0 TRAINING

Training is not required.

35.0 ATTACHMENTS

Attachment [1]	Tank specification Sheet
Attachment [2]	Equipment Specification Exceptions form
Attachment [3]	OSC Seismic Analysis 1056-NA-L-PZI-3/1-A1 (applicable FRS figures only)
Attachment [4]	Drawing of the tank SS-312-626

Attachment [1]

(VENDOR shall return one copy of this form with all blanks filled in)

(Vendor's Name)

(Manufacturer's Name)

(Quotation Number)

Major milestones:	
Time required for submission of preliminary dimensional drawing showing arrangement and anchor bolt details (weeks after purchase order)	
Time required for submission of final certified dimensional drawings (weeks after purchase order)	
Time required for delivery of equipment after receipt of purchase order (weeks)	

Tank data:	
[1] OSC Fuel Oil Storage Tank Identification	
a) MECL	DO900TNK-001
b) Type	Horizontal Double Wall
c) DWG No.	SS-312-626
[2] Capacity	
a) Normal full /m^3	20 m^3
b) Overflow point /m^3	
[3] Fluid	Fuel Oil
[4] Ambient temperature	-12°C / + 40°C
[5] Design code/class	

[6] Design Pressure	Atmospheric
[7] Design temperature min/max	
[8] Location	Covered tank vault
[9] Tank vault dimensions (l x w x h)	
[10] Altitude (elevation)	Tank C/L el. 97.500 m
[11] Material	Per SP-G3036 art. 8.0
[12] Design code	Per SP-G3036 art. 0
[13] Classification	AQ; Seismic category I
[14] Weight	
a) Maximum Capacity /kg	
b) Overfill protection level /kg	
c) Empty tank /kg	
[15] Dimensions	
a) Diameter /mm	
b) Length /mm	
[16] Material thickness	
a) Inner tank shell /mm	
b) Outer tank shell /mm	
[17] Welds (type)	
c) Inner tank shell	
d) Outer tank shell	
[18] Maximum allowable nozzle forces and moments	

Attachment [2]

EQUIPMENT SPECIFICATION

EXCEPTIONS

The VENDOR certifies that the Proposal is in complete and absolute agreement with Specification SP-G3036 rev.0, except as specifically outlined below. (Use additional sheets if required.)

(Vendor's Name)

(Manufacturer's Name)

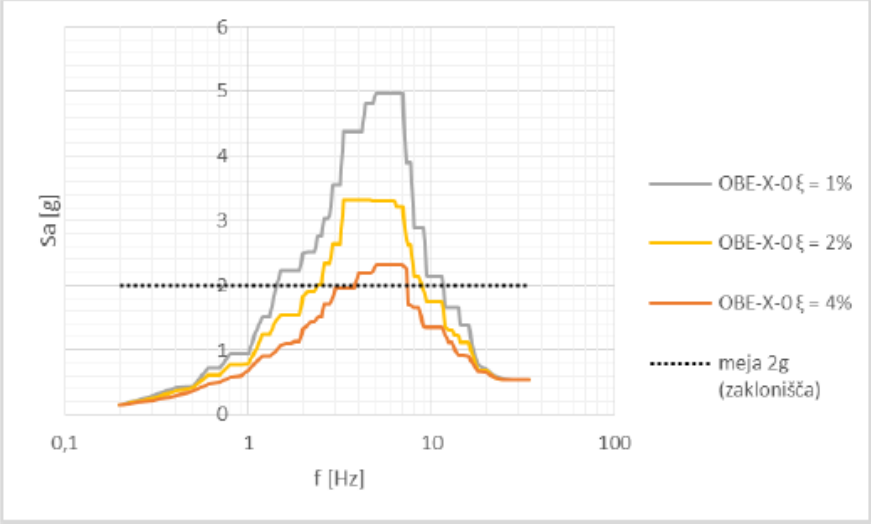
(Quotation Number

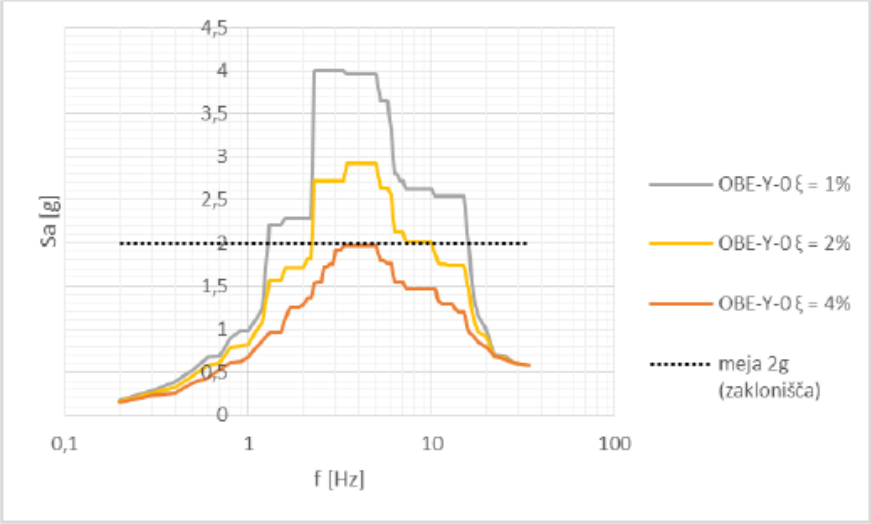
(Signature)

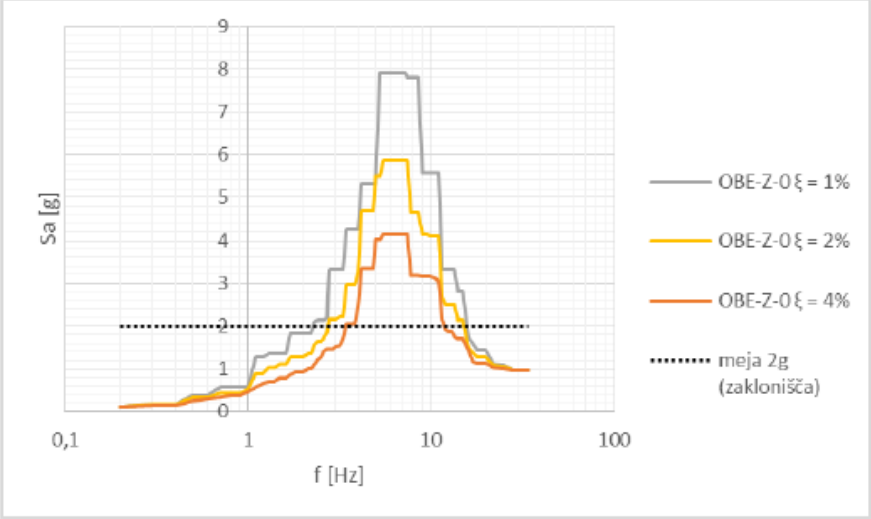
(Title)

Attachment [3]

Etažni spektri – OBE – nivo 0

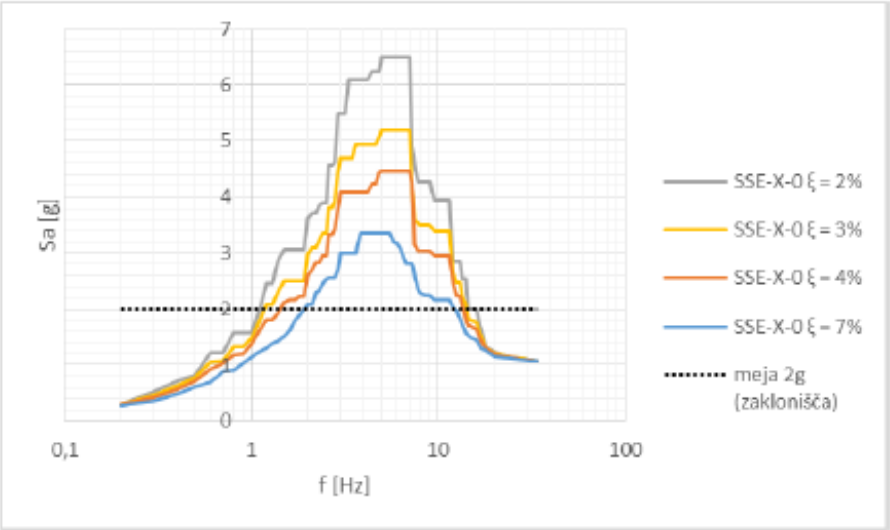


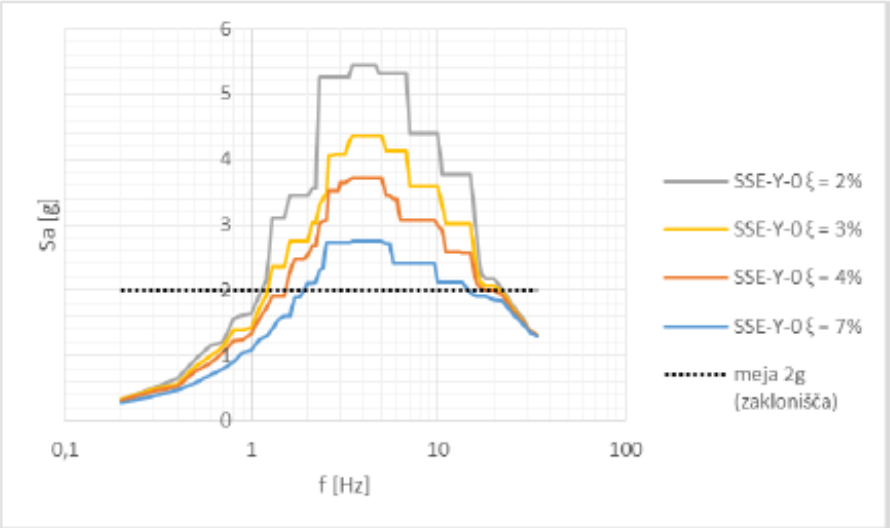


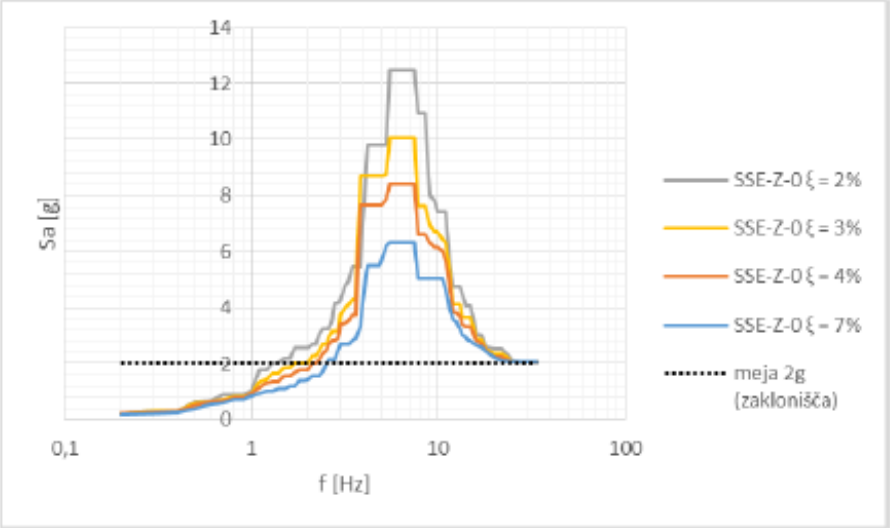


NOTE: * Limit 2 g is not based on seismic demands and shall not be considered.

Etažni spektri – SSE – nivo 0







NOTE: * Limit 2 g is not based on seismic demands and shall not be considered.

Attachment [4]

SS-312-626 – OSC Fuel Oil Storage Tank DO900TNK-001