

Technical Specification for Items RFQ No. 187229, Rev. 2

1. SCOPE

Line	NEK Item Number	Part Number	UOM	Quantity	Need by Date	Safety Classification
1	432344		FT	4000	31-July-26	SR
CABLE,POWER, NO. CONDUCTORS:1/C, 750 CLASS B COPPER C-RD -SS- 175 OKOGUARD EPR - 024 SC EPR - 005 COPPER TAPE (25% MIN LAP) - DW TAPE - DW TAPE - 080 OKOLON TS-CPE – SEQ PRINT – 15KV FOR CT USE,CLASS:1E NUCLEAR, SC:SR						
Item shall be supplied in accordance with the following TQRs: A00, A07, B00, B01, B04, B06, B07, B08, C00, C01, E00, E01, F00, F04, F80, F81, F82, F84, F85, F86, F88, F90, G00, G01						
The following documents and/or records shall be submitted with the above item: G12- CERTIFICATE OF COMPLIANCE TO IEEE 323/383 G22 - NONCONFORMANCE REPORTS G23 - STANDARD MANUFACTURER TEST CERTIFICATE G44 - DIELECTRIC STRENGTH TEST RECORD G46 - FLAME (IEEE-383/1974) TEST RECORD G623 - DRAWING G67 - MANUFACTURING AND QC INSPECTION PLAN I07 - FINAL TEST REPORT X03 - WITNESS/HOLD POINTS X08 - CERTIFICATE OF COMPLIANCE TO STANDARD ICEA S-97-682, ICEA S-93-639 AND ICEA T-31-610 X083 - CERTIFICATE OF COMPLIANCE TO QUALIFICATION REPORT 527 REV 1 X17 - SUPPLEMENT DOCUMENTS X19 - ADDITIONAL NOTES						

2. TECHNICAL AND QUALITY REQUIREMENTS

IMPORTANT:

The quotation has to include Statement of Compliance with the Technical and Quality Requirements from Purchaser's RFQ including the Bidder's commitment to provide requested documents and/or records. If any of these requirements cannot be fulfilled, please, provide the explanation.

A00 - GENERAL REQUIREMENTS

ALL REQUIRED DOCUMENTS SHALL BE SUPPLIED IN ENGLISH OR ENGLISH/ MULTILINGUAL.

A07 - NEW ITEMS

ALL ITEM(S) PROVIDED ON THIS PURCHASE ORDER SHALL BE SUPPLIED IN THE NEW CONDITION (NOT USED OR REFURBISHED IN ANY WAY).

B00 - QUALITY ASSURANCE REQUIREMENTS

B01 - QUALITY ASSURANCE PROGRAM

ALL SERVICES AND ITEMS, INCLUDING THOSE WHICH HAVE TO COMPLY WITH ASME CODE REQUIREMENTS, SHALL BE SUPPLIED IN ACCORDANCE WITH A QUALITY ASSURANCE PROGRAM THAT COMPLIES WITH 10CFR50 APPENDIX B AND ANSI N45.2-1977 OR ASME NQA-1, AND THAT HAS BEEN PREVIOUSLY EVALUATED AND ACCEPTED BY NEK.

B04 - SUPPLIER QA MANUAL CONTROLLED DISTRIBUTION

IF A CONTROLLED COPY OF THE LATEST REVISION OF THE SUPPLIER'S QUALITY ASSURANCE PROGRAM MANUAL HAS

NOT BEEN PREVIOUSLY SENT TO NEK, SUBMIT A COPY OF THIS DOCUMENT TO:

LUKA MIKELIĆ, QUALITY & NUCLEAR OVERSIGHT DIRECTOR
tel.:++386 748 02 429
E-mail:luka.mikelic@nek.si

IF A REVISION TO THE SUPPLIER'S QUALITY ASSURANCE MANUAL IS MADE DURING THE CONDUCT OF WORK ASSOCIATED WITH THIS ORDER, A COPY OF THE REVISION SHALL BE SUBMITTED TO THE ABOVE ADDRESS PRIOR TO IMPLEMENTATION OF THE CHANGE.

B06 - 10CFR21 REPORTING

THIS ORDER IS SUBJECT THE PROVISIONS OF THE TITLE 10 OF THE U.S. CODE OF FEDERAL REGULATIONS PART 21, REPORTING OF DEFECTS AND NONCOMPLIANCE, REPORTING PURSUANT TO 10CFR21 SHALL BE MADE TO:

STANKO MANOJLOVIC , ENGINEERING SUPPORT FOR LONG TERM OPERATION SUPERINTENDENT
tel:++386 748 02 527
E-MAIL: stanko.manojlovic@nek.si

B07 - RIGHTS OF ACCESS

NUCLEAR POWER PLANT KRSKO (NEK)) SHALL HAVE THE RIGHT OF ACCESS TO THE SUPPLIER'S AND ANY SUBTIER SUPPLIER'S FACILITIES AND RECORDS FOR INSPECTION OR AUDIT BY NEK , THEIR DESIGNATED REPRESENTATIVE AND/OR OTHER PARTIES AUTHORIZED BY NEK. THIS SHALL INCLUDE, BUT IS NOT LIMITED TO, THE RIGHT TO AUDIT MATERIAL, TEST, INSPECTION SERVICES AND QUALITY RECORDS; MAKE SURVEILLANCE VISITS DURING MANUFACTURING; AND WITNESS TESTS TO THE EXTENT NEK DEEMS NECESSARY TO ASSURE THAT WORK IS BEING PERFORMED IN ACCORDANCE WITH ALL PRODUCT DESIGN AND MANUFACTURING REQUIREMENTS. NEK WILL MAKE ARRANGMENT FOR ANY SUBTIER AUDIT OR INSPECTION THROUGH SUPPLIER. SUPPLIER WILL HAVE OPTION TO ACCOMPANY NEK DURING ANY SUB-SUPPLIER AUDITS OR INSPECTIONS.

INSPECTIONS OR EXAMINATIONS PERFORMED BY NEK, OR ITS DESIGNATED REPRESENTATIVES, DO NOT RELIEVE THE SUPPLIER OF ITS RESPONSIBILITY TO MEET THE REQUIREMENTS OF THIS PURCHASE ORDER.

B08 - RETENTION OF RECORDS

A RECORD SYSTEM (RETENTION TIME FOR LIFETIME AND NON-PERMANENT RECORDS) SHALL BE ESTABLISHED AND MAINTAINED BY THE SUPPLIER THAT PROVIDES DOCUMENTARY EVIDENCE OF THE QUALITY OF THE ITEMS AND ACTIVITIES AFFECTING QUALITY. THESE QA RECORDS SHALL INCLUDE RESULTS OF REVIEWS, INSPECTIONS, TESTS, AUDITS, MONITORING OF WORK PERFORMANCE AND MATERIAL ANALYSIS. RECORDS SHALL, AS A MINIMUM, IDENTIFY THE INSPECTOR OR DATA RECORDER, DATE INSPECTION WAS PERFORMED, TYPE OF OBSERVATION, PROCEDURES USED, RESULTS, ACCEPTABILITY, AND ACTION TAKEN FOR DEFICIENCIES NOTED. ADDITIONAL RECORDS OF SUPPORTING DATA SHALL ALSO BE MAINTAINED. ALL QUALITY VERIFICATION RECORDS, PROCEDURES AND QUALIFICATIONS SHALL BE IDENTIFIABLE TO THE ITEM OR ACTIVITY INVOLVED. THESE RECORDS SHALL BE RETRIVEABLE AND AVAILABLE FOR EXAMINATION. THE CLASSIFICATION AND RETENTION TIME OF LIFETIME AND NON-PERMANENT RECORDS SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF USNRC REGULATORY GUIDE 1.28, REV. 3-1985. THE SUPPLIER MAY DISPOSE OF NON-PERMANENT RECORDS AFTER THE REQUIRED RETENTION PERIOD. IF THE SUPPLIER GOES OUT OF BUSINESS BEFORE THE END OF THE RETENTION PERIOD OF THESE RECORDS, THE SUPPLIER WILL SEND ONE COPY OF THESE RECORDS TO THE NEK IMPORT DEPARTMENT SUPERINTENDENT.

C00 - NONCONFORMANCE AND DEVIATION

C01 - NO SUBSTITUTIONS

THE SUPPLIER SHALL NOT SUBSTITUTE OTHER ITEMS FOR THE ITEMS REQUESTED WITHOUT SPECIFIC WRITTEN APPROVAL OF NEK PRIOR TO SHIPMENT. IF THE SUPPLIER IDENTIFIES CHANGES, NONCONFORMANCES, OR SEEKS WAIVERS FROM OTHER REQUIREMENTS OF THIS PURCHASE ORDER, THE SUPPLIER SHALL DESCRIBE SUCH CONDITIONS AND THIS INFORMATION SHALL BE TRANSMITTED, IN WRITING, TO NEK IMPORT DEPARTMENT SUPERINTENDENT.

IF THE REQUESTED INFORMATION IS APPROVED BY NEK, THE SUPPLIER SHALL INCLUDE AN APPROVED COPY OF THE INFORMATION STATEMENT WITH THE ITEMS SHIPPED.

THE SUPPLIER SHALL IDENTIFY ANY CHANGE MADE TO UPGRADE ANY ITEM ON THIS PURCHASE ORDER AS A RESULT OF USNRC CORRESPONDENCE (SUCH AS INFORMATION NOTICES, BULLETINS AND ADVISORY LETTERS). CHANGES AS PART OF THE SUPPLIER'S PRODUCT IMPROVEMENT PROGRAM SHALL ALSO BE IDENTIFIED AND TRANSMITTED IN WRITING TO THE NEK IMPORT DEPARTMENT SUPERINTENDENT FOR APPROVAL.

E00 - ENVIRONMENTAL QUALIFICATION

E01 - QUALIFIED LIFE

THE SUPPLIER SHALL SUBMIT QUALIFIED LIFE FOR ITEM. THE QUALIFIED LIFE SHALL DESCRIBE PERIOD OF TIME FOR WHICH 1E ITEM CAN OPERATE, EXPERIENCE A DESIGN BASE EVENT AS WELL AS ALL AGING MECHANISMS AND CONTINUE TO PERFORM ITS SAFETY RELATED FUNCTION.

F00 - SHIPPING, HANDLING, MARKING AND STORAGE INSTRUCTIONS ;

F04 - HANDLING, PACKAGING AND SHIPPING

HANDLING, PACKAGING AND SHIPPING OF THE ITEM SUPPLIED UNDER THIS PURCHASE ORDER SHALL BE IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) N45.2.2-LEVEL D.

F80 - CABLE REEL MARKINGS AND CABLE LENGTH REQUIREMENTS

F81 - CONTRACT OR P.O.

F82 - NEK ITEM NUMBER

F84 - REEL NO.

F85 - CABLE LENGTH

MINIMAL CABLE LENGTH ON A REEL MUST BE AT LEAST 2000FT OR AS ORDERED PER SHIPMENT.

F86 - CONDUCTOR SIZE

F88 - PART NUMBER

F90 - PACKING SLIPS ARE TO BE SHIPPED WITH ORDER

G00 - SUPPLIER DOCUMENTATION REQUIREMENTS

ALL REQUIRED DOCUMENTS SHALL BE SUPPLIED IN ORIGINAL HARD COPY OR ELECTRONIC FORM DEFINED BY SUPPLIER QA PROGRAM AND ACCEPTED BY NEK.

G01 - DOCUMENT TRACEABILITY

ALL REQUIRED DOCUMENTS SHALL BE TRACEABLE TO THE NEK PURCHASE ORDER. DOCUMENTS SUPPLIED WHICH ARE ASSOCIATED WITH SPECIFIC ITEMS ON THE ORDER, SUCH AS TEST REPORTS, SHALL BE IDENTIFIED IN ORDER TO ESTABLISH TRACEABILITY TO THAT ITEM OR GROUP OF ITEMS.

G12- CERTIFICATE OF COMPLIANCE TO IEEE 323/383

THE SUPPLIER SHALL PROVIDE A CERTIFICATION SHOWING THE ITEM(S) HAS BEEN QUALIFIED IN ACCORDANCE WITH IEEE 323-1974, IEEE 383-2003 AND THE ENVIRONMENTAL CONDITION OF THIS ORDER AS APPLICABLE.

G22 - NONCONFORMANCE REPORTS

THE SUPPLIER SHALL PROVIDE A COPY OF ALL NONCONFORMANCE REPORTS AS REPAIR OR USE-AS-IS DISPOSITION OF MATERIALS DURING THE MANUFACTURING PROCESS TO UTILITIES ONLY IN CASES THAT AFFECT ENVIRONMENTAL QUALIFICATION, INTERCHANGEABILITY, DESIGN OR OPERATING PARAMETERS GENERATED DURING MANUFACTURE OF PROCESSING OF THIS ORDER.

THIS REPORT SHALL INCLUDE TECHNICAL JUSTIFICATION FOR NONCONFORMANCE DISPOSITIONS. ALL DISPOSITIONS WHICH DO NOT RETURN AN ITEM TO THE CONDITIONS STATED IN AN APPROVED DRAWING OR SPECIFICATION SHALL BE APPROVED BY NEK PRIOR TO THE SHIPMENT OF THE AFFECTED ITEM.

G23 - STANDARD MANUFACTURER TEST CERTIFICATE

THE SUPPLIER SHALL PROVIDE A CERTIFICATION SHOWING THE ITEM(S) SUPPLIED WERE SUBJECTED TO THE STANDARD MANUFACTURER PRODUCTION TESTS (INCLUDING TESTS RESULTS).

G44 - DIELECTRIC STRENGTH TEST RECORD

G46 - FLAME (IEEE-383/1974) TEST RECORD

G623 - DRAWING

G67 - MANUFACTURING AND QC INSPECTION PLAN

THE SUPPLIER SHALL PROVIDE THE ITEM MANUFACTURING ACTIVITIES AND QC INSPECTION PLAN TO NPP KRŠKO FOR THE REVIEW AND DEFINITION OF NPP KRŠKO QC WITNESS / HOLD POINTS.

I07 - FINAL TEST REPORT

X03 - WITNESS/HOLD POINTS

THE FOLLOWING WITNESS/HOLD POINTS APPLY:

- FINAL TEST

X08 - CERTIFICATE OF COMPLIANCE TO STANDARD ICEA S-97-682, ICEA S-93-639 AND ICEA T-31-610

THE SUPPLIER SHALL PROVIDE A CERTIFICATION SHOWING THE ITEM(S) HAS BEEN QUALIFIED IN ACCORDANCE WITH ICEA S-97-682, ICEA S-93-639 AND ICEA T-31-610.

X083 - CERTIFICATE OF COMPLIANCE TO QUALIFICATION REPORT 527 REV 1

THE SUPPLIER SHALL PROVIDE A CERTIFICATION SHOWING THE ITEM(S) HAS BEEN QUALIFIED IN ACCORDANCE WITH OKONITE EQ QUALIFICATION REPORT 527 REV 1.

X17 - SUPPLEMENT DOCUMENTS

SUPPLEMENT SHALL INCLUDE FOLLOWING TESTS:

- a. Conductors shall meet the electrical resistance requirements of ICEA S-97-682, Section 2.4
- b. Insulation resistance test shall comply with the requirements of ICEA S-97-682. Each cable shall have an insulation resistance not less than that corresponding to the insulation resistance constant of at least 50,000 megohms-1000 ft. at 15.6°C.
- c. A high voltage AC test shall be performed in accordance with Part 9.12 of ICEA S-97-682 at the AC voltages given in Table II.
- d. Shield resistance shall be measured and recorded from end to end on the completed cable.
- e. Partial Discharge (Corona) Test: Each shipping length of completed shielded power cable shall comply with the maximum partial discharge of 5 picocoulombs at 200 volts per mil of insulation. The partial discharge test shall be performed in accordance with the procedures of ICEA T-24-380.
- f. Jacket spark test: The cable jacket shall be tested in accordance with ICEA S-97-682 Part 7.3.1.
- g. Water block test: A water penetration production test for filled strand cable construction is performed on each master length of insulated conductor. The test procedure shall be in accordance with ICEA T-31-610.

2. Test on samples

Test procedures shall be in accordance with IPCEA S-19-81, Sections 6.2 through 6.21. The test on samples shall include, but not necessarily be limited to, the following:

- a. Cross sectional measurement of the conductor and the finished cable diameters. Quantity of samples shall be as shown in IPCEA S-19-81, Table 6-1.
- b. Thickness measurement of semiconducting and metallic tapes in accordance with IPCEA S-19-81, Section 6.10.
- c. Thickness measurement of the insulation and the jacket shall conform to the requirements of IPCEA S-19-81, Sections 6.4.2 through 6.4.3.2.
- d. Quantity of samples for physical and aging test on the insulation and the jacket shall be as shown in IPCEA S-19-81, Table 6-2, for the insulation, and Table 6-3 for the jacket. The insulation and the jacket, when tested in accordance with IPCEA procedures, shall meet the requirements detailed in Appendix 1. Material Data forms.

X19 - ADDITIONAL NOTES

1. Identification

a. The following identifying legend shall be printed permanent contrasting with the jacket color and shall not fade during the normal use of the cable. Identification on the jacket shall be repeated at no more than two (2) foot intervals with unmarked surfaces not exceeding six inches.

b. MANUFACTURER (A) (B) CU EPR ins TS-CPE SHLD (C) KV (D)% INSUL LEVEL (E) MILS 90C (Year of Manufacture) (Seq. Footage)

- (A) Plant Number
- (B) Conductor Size - either AWG or KCMIL
- (C) Voltage
- (D) 100
- (E) Nominal Insulation Thickness

2. Electrical tests.

An electrical test on each entire length of reeled cables shall be performed as follows:

a. AC voltage test

Each reel length of insulated conductor without jacket shall be subjected to a high voltage, 60 (50) hertz (Hz) test for 5 minutes at a potential of 27 kV after immersion in water for at least 6 hours in accordance with Interim Standard #1 to IPCEA S-68-516, Table 1

b. Insulation resistance test

Immediately after the high voltage ac test above, and while still submerged in water, an insulation resistance test shall be made on each reel length of cable without a jacket. The insulation resistance constant (K) shall not be less than 20,000 per 1,000 ft (300 m) when corrected to 60 F (15.5 C) in accordance with Interim Standard #1 to IPCEA S-68-516 and IPCEA S-19-81, Section 6.23.

c. DC voltage test

Each reel length of finished cable ready for shipment (insulated, shielded, and overall jacketed) shall withstand, without failure, a dc test at a potential of 70 kV for 15 minutes in air. The minimum applied dc test voltage shall be in accordance with Interim Standard #1 to IPCEA S-68-516, Table 1.

d. Corona level test

Each reel length of finished cable shall meet a minimum corona extinction level of 11 kV in accordance with Interim Standard #1 to IPCEA S-68-516, Table 1, and IPCEA S-19-81, Section 6.24, at 60 (50) Hz.

e. Conductor resistance

The conductor resistance shall be measured on all finished cables, and shall meet the applicable values shown in IPCEA S-19-81, Table 2-13.

