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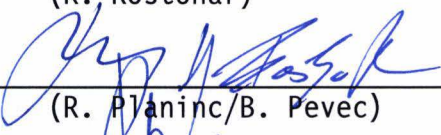
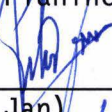

NUKLEARNA ELEKTRARNA KRŠKO

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PREPARATION OF INSTALLATION PACKAGES

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PACKAGE**

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PROCEDURE CHANGES

Rev.	Page	Description of changes
4	10 of 24	Corrected abbreviation WSIP and added MCR
	12 of 24	Corrected section 5.2.2
	13 of 24	Corrected 5.4 title (WSIP) and sections 5.4.4, 5.4.5 and 5.4.6
	13 of 24	Added abbreviation (5.4) and a mandatory holdpoint for inspection of sealed fire barriers is added (ZKP 2024-2652) (5.4.7).
	14,16	Typo corrections
	18 of 24	Manufacturing & Inspection Plan is replaced with Work Sequence and Inspection Plan
	21 of 24	Corrected section 5.11.3 (WSIP)
	22 of 24	Corrected section 5.12.2 with App 6.7 (number)
	23 of 24	Corrected section 5.14.2 with App 6.8 (number)
	23 of 24	Corrected section 5.14.3 (E.;I.) with WSIP
	23 of 24	Corrected section 5.14.3 with App 6.9 (number)
	24 of 24	Typo correction (6.4)
	App. 6.4	Added column NEK QA (Notifications and Inspection)
	App. 6.9	Typo corrections and changed title E and I(WSIP)

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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure is one of the ED-1 program (Design Modification control Program, see ref. 2.1) implementing procedures. The purpose of this procedure is to establish guidelines for the consistent preparation of installation packages after a plant modification design package approval, per ref. 2.3. A modification installation package (IP) is prepared to provide consistent and concise information about needed modification activities to the various plant departments. Also, IP shall be used as an input for scheduling, planning of modification activities, planning of required manpower etc. and to identify responsible personnel for implementation, per ref. 2.9.

1.2 Scope

The procedure applies to all modifications to the plant structures, systems, and components where preparation of IP is required. It applies to both new installations and modification to existing installations. Modification could bi implemented by NEK's maintenance TO.VZ or by an outside contractor. The procedure establishes standardized guideline requirements for finalization of IP and later implementation of all planned and scheduled modification's activities. The scope of particular IP shall be adapted to the scope of the specific modification.

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2.0 REFERENCES

- 2.1 ED-1, Design Modification Control Program
- 2.2 ADP-1.2.003, Plant Design Modification and Control Process
- 2.3 ESP-2.602, Plant Design Modifications
- 2.4 ADP-1.2.127, Quality Records Management
- 2.5 ADP-1.2.108, Pregledi, revizije, spremembe in brisanje obstoječih postopkov elektrarne
- 2.6 QD-2, Plan kontrole kvalitete
- 2.7 MD-1, Notranje usmeritve in cilji NEK
- 2.8 Zakon o graditvi objektov (ZGO) in Zakon o spremembah in dopolnitvah zakona o graditvi objektov (ZGO-1B)
- 2.9 ADP-1.0.131, Organizacija izvedbe modifikacije
- 2.10 ESP-2.611, Design Modification Turnover and Closeout
- 2.11 ADP-1.1.122, Izdaja, priprava in planiranje delovnega naloga
- 2.12 ESP-2.609, Field Design Change Request
- 2.13 ADP-1.6.702, Ravnanje z nevarnimi kemikalijami
- 2.14 MD-12, Program projektnega vodenja v NEK
- 2.15 ADP-1.0.500, Program protipožarne zaščite - Požarni red
- 2.16 ADP-1.0.020, Uporaba korektivnega programa
- 2.17 ADP-1.0.001, Notranja organiziranost NE Krško
- 2.18 ADP-1.1.101, Preprečitev vnosa tujkov
- 2.19 ADP-1.1.128, Kontrola izvajanja vzdrževalnih aktivnosti z namenom preprečitve vnosa tujkov v sisteme
- 2.20 ADP-1.1.124, Pregled planiranih delovnih nalogov in ostalih planiranih aktivnosti
- 2.21 ADP-1.1.125, Izvedba delovnega naloga
- 2.22 ADP-1.1.126, Testiranje po vzdrževalnih posegih (TPV)
- 2.23 ADP-1.1.127, Zaključitev delovnega naloga
- 2.24 ADP-1.1.033 Varnost in zdravje pri delu v NE Krško
- 2.25 ADP-1.2.001 Organizacija in odgovornosti OE inženiringa

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3.0 RESPONSIBILITIES

3.1 The Director of Engineering Service Division (ING) is responsible for:

- Overall coordination and implementation of the requirements of this procedure by ING personnel and contracted design agents.
- Determining and advising the General Director of the resources needed to meet the provisions of this procedure.
- Resolving any discrepancies that cannot be resolved at a lower level.

3.2 The Superintendent ING.MOD is responsible for:

- Implementing the requirements of this procedure for the designs under his control.
- Assigning a qualified Responsible Engineer and a Peer Reviewer.
- Resolving any conflicts between the Responsible Engineer and the Peer Reviewer.
- To achieve agreement with the Maintenance manager regarding the installation organization for particular modification.
- Reviewing the installation package for clarity, adequacy and completeness.
- Providing final approval of the Installation Package.
- Achieve the contract with outside installation organization (Contractor) in the case when decision is made that NEK - VZ will not be that organization.

3.3 The Maintenance Manager is responsible for:

- To achieve agreement with the ING.MOD Superintendent regarding the installation organization for particular modification.
- Distributing the approved installation package to the Discipline Engineers and scheduling/planning coordinators within technical operations for modifications installed by TO.VZ
- Assigning Discipline Engineers to coordinate work activities and

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to prepare work packages for installations performed by T0.VZ regarding (Attachment 6.2) of ADP-1.0.131, see ref. 2.9.

- Assigning Discipline Coordinators to interface between operation departments and outside contractors for installations performed by contractors regarding (Attachment 6.3) of ADP-1.0.131, see ref. 2.9.

3.4 The Responsible Engineer is responsible for:

- Developing or providing the installation package according to this procedure.
- Soliciting and coordinating the required input from other departments.
- Resolving any comments as the result of Peer review or Management review.
- Distributing the installation package for action to the Maintenance Manager for installations performed by T0.VZ.
- Distributing the installation package for information to the Maintenance Manager and Operations Scheduling/Planning for installations performed by Contractors.
- Overall coordination over the implementation of particular modification.

3.5 The Maintenance Discipline Engineer is responsible for:

- Providing input to the development of schedules and manpower estimates for installations performed by T0.VZ.
- Providing procedures and other related technical and technological instructions important for field implementation helping RE to develop comprehensive IP in case that T0.VZ is performing installation of the modification.
- Collection of inspection and test records required by the installation package to be used in as construction records in the modification turnover package.
- Review of the IP when the modification will be implemented by T0-VZ or by contractor if he or his people are responsible to co-ordinate Contractor's activities as specialist for that technical field of activities.

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<ul style="list-style-type: none">- Developing IP if it was previously agreed.		
3.6	The System Engineer is responsible for :	
<ul style="list-style-type: none">- Providing input to final test schedule.- Providing input to the precautions/Limitations with respect to system/plant conditions during the modification installation.- Developing the final system test procedure to be included in the installation package.- Developing system start-up procedures for large or complex modifications.		
3.7	The Contractor(s) is (are) responsible for:	
<ul style="list-style-type: none">- Providing input to the development of schedules and manpower estimates for installations performed by Contractor.- Providing procedures and other related technical and technological instructions important for field implementation helping RE to develop comprehensive IP in case that Contractor is performing installation of the modification.- Collection of inspection and test records required by the installation package to be used in as construction records in the modification turnover package.- Preparation of Installation Package if it is contractual agreed.- Review and support development of the IP when the modification will be implemented by Contractor.		
3.8	SKV is responsible for:	
<ul style="list-style-type: none">- SKV.QA engineer shall additionally check and approve modification's Inspection Plan and notify inspection steps to be checked by NEK inspectors.- SKV.QA engineer shall perform final review and comment of the IP before implementation of the modification.		

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4.0 DEFINITIONS AND ABBREVIATIONS

4.1 Definitions

4.1.1 Installation Package (IP) - an organized document that describes work to be accomplished, the detail design and technology to be applied to the modification implementation, the schedule for installation, type and number of craft personnel required, inspection plans and final acceptance test plan. This package is intended to be used as a project management tool.

4.1.2 Installation Procedure - a prescribed document which assures that critical activities associated with the modification are carried out in a planned, controlled and orderly manner. The procedure shall provide the minimum necessary guidance for controlling unusual activities or activities which directly impact operation of plant equipment, particularly safety-related and technical specification-related equipment. The procedure need not address routine construction activities already covered by applicable approved procedures. Installation procedure is normally part of Design Modification package (DMP) section E (ref. 2.3).

4.1.3 Common Activity Groups - activities usually common to a single craft labor group or organized around a common work area. Examples are: cable pulling, pipe or electrical conduit support erection, pipe fitting, welding, etc.; or auxiliary building elevation 100, reactor building elevation 115, main control room, etc.; or main control board, motor control center, main feedwater pump, etc.

4.1.4 Shift Plan - a detailed plan describing the time of day for the work, the number and type of personnel required for the duration of the installation activities.

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4.2

Abbreviations

ALARA - As Low As Reasonably Achievable HP Protection Principles

BOM - Bill of Material

DE - Discipline Engineer

DMP - Design Modification Package

ING - Engineering Service Division

HP - Health Physics

HVAC - Heating Ventilation and Air Conditioning

IP - Installation Package

MCR – Main Control Room

NCR - Non Conformance Report

NEK - Nuklearna Elektrarna Krško

PR - Peer Reviewer

PQR - Procedure Qualification Records

PWHT - Post Weld Heat Treatment

RE - Responsible Engineer

SE - System Engineer

SKV - Quality and Nuclear Oversight Division

SKV.QA - Quality Assurance Department

TO - Technical Operations Division

TO.VZ - Technical Operation Division - Maintenance Department

WPS - Welding Procedure Specification

WSIP - Work Sequence and Inspection Plan

ING.MOD - Engineering Service Division – Design Changes Department

FME – Foreign Material Exclusion

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5.0 PROCEDURE INSTRUCTIONS

Use sections E and F from approved DMP as a base document for development o installation package(s).

Simple modification (as determined by Superintendent ING.MOD per ref. 2.3, ESP-2.602 Plant Design Modification Appendix 6.13a) can be implemented through work order process without Installation Package (IP), Installation procedure will be prepared per ref. 2.3, ESP-2.602 (see section 5.6.1 and Appendix 7.3 of ESP-2.602).

The development of the installation package is illustrated in procedure Flow Chart, Appendix 6.1, and is discussed in the following sections:

5.1 General Requirements

5.1.1 An installation package shall be developed for each installation discipline. Disciplines may be combined in a single package when the activities of a supporting discipline are minor in nature.

5.1.2 Installation Package Organization

5.1.2.1 The installation package is organized into sections as shown in the Installation Package Table of Contents Appendix 6.3.

5.1.2.2 Include sections of the installation package as required depending on the number and complexity of activities in the modification.

5.1.3 Page Labels

5.1.3.1 Each page shall bear the installation package number, the latest revision number of the page, and the page number. The installation package number is the plant modification number preceded by "IP" and followed with a discipline designator (e.g. "IP-164-FP-L-M"). The RESPONSIBLE ENGINEER will provide these numbers preferably in the upper right corner of each page.

5.1.3.2 The installation packages shall have a cover page as shown in Appendix 6.2

5.1.3.3 Existing plant procedures and documents, and procedures and documents developed for the installation that have multiple pages with existing page numbering, need only have the information included on the first page, provided the procedure/document accounts for all its pages.

5.1.3.4 The first approved issue shall be identified as revision 0.

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<p>5.2 List of Documents</p> <p>5.2.1 The RESPONSIBLE ENGINEER shall provide a list of all documents required to implement, inspect and test the portion of the modification described in this installation procedure. The list may include:</p> <ul style="list-style-type: none">a) Interim Drawingsb) Reference Drawingsc) Bill of Materiald) Vendor Manualse) Installation Proceduresf) Inspection Proceduresg) Start-Up and Tests Proceduresh) Other Documents Required to complete the installation <p>5.2.2 Each document listed shall include the Document number, the Title and the revision level or date. All listed documents shall be included in this installation package.</p> <p>5.3 Description of Work</p> <p>5.3.1 The RESPONSIBLE ENGINEER shall provide a general description of work and scope in sufficient detail to allow a thorough understanding of the installation tasks.</p> <p>5.3.2 The Scope shall identify the project by title and number, the major discipline to implement the work described in the installation package, and any other disciplines that have minor work for the modification installation that does not warrant a separate installation package.</p> <p>5.3.3 The description should state the activities by plant areas and/or components, cabinets, and panels. The activities should be general and describe unique items only if there is a special circumstance such as a critical sequence or special work process; otherwise the description should indicate common activity groups.</p> <p>5.3.4 The RESPONSIBLE ENGINEER should also describe whether or not the package is a complete installation or other packages of the same discipline will</p>		

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follow.

5.3.5 In case that Contractor is responsible for manufacturing or purchasing of the required equipment or components it will strictly follow requirements defined in DMP as equipment technical specifications, bill of material, drawings etc.

5.4 Work Sequence and Inspection Plan (WSIP)

5.4.1 For each of the work activities and its sub activities described in section 5.3 including inspection activities the Responsible ENGINEER should list the order that these are to be performed.

5.4.2 Each activity shall be indicated by work step number, inspection step number (numbered by a lead number to indicate work in a particular group and by sub-numbers for work associated with the master activity), the work and inspection activity description, the responsible group or organization, any associated inspection steps, reference documents, FME required and any remarks.

5.4.3 Work activities inside Work Sequence and Inspection Plan shall be organized, sequenced and structured in such manner that combines activities which will be than performed by particular linked NEK Work Order. To separate activities inside Installation Package per NEK Work Orders and for better visualization during work execution on the field, Work Sequence and Inspection Plan shall have page marker tabs with NEK Work Order Numbers on every tab.

5.4.4 The Work Sequence and Inspection Plan identifies inspection steps by sequence and in conjunction with work sequence. Including the reference implementing documents (referenced by explicit IP page number) and acceptance criteria along with their revision status, the need to produce the record, the involved parties and the level of their involvement, the evidence of performance of required activity, the identification of generated records and reference to NCR's if they appear.

5.4.5 The RESPONSIBLE ENGINEER should indicate in the Work Sequence and Inspection Plan if he is to witness the inspection.

5.4.6 Witness and holdpoints for inspection steps in Work Sequence and Inspection Plan will be fulfilled by SKV.QA and others included in installation.

5.4.7 Special attention during work sequence plan preparation shall be addresses to FME requirements (ref. 2.18) and sealing of affected fire barriers (penetrations). It is mandatory to put holdpoints on inspection steps for sealing the fire barriers (penetrations) (WSIP).

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5.4.8 During work sequence plan preparation, one of the mandatory steps is an execution of walkdown on installation locations and preparation of walkdown report.

5.4.9 The work sequence and inspection plan will be tabulated as shown on Appendix 6.4 and applies to manufacturing and installation activities.

5.5 Time Schedule

5.5.1 The RESPONSIBLE ENGINEER shall prepare or provide a work activity schedule for all work, pre-outage and outage required to implement the modification. For installations performed by TO.VZ the Discipline Engineer should be consulted for input to the schedule.

5.5.2 The schedule shall be in bar graph form as shown in Appendix 6.5. Gantogram or logic diagram is appreciable too.

5.5.3 The bar graph shall be indicated in days, not dates, on the horizontal axis. The outage work start date is to be day 1. Work scheduled before the outage will be indicated with negative numbers. The activities shall be on the vertical scale.

Note: The outage workday indication is an approximation of the outage time for which the activities are planned. Actual dates will be determined by planning department after considering all other outage activities and plant conditions.

5.5.4 The schedule activities should be as detailed as necessary but generally the activities shall be grouped into major categories.

5.6 Precautions/Limitations

5.6.1 The RESPONSIBLE ENGINEER shall list any Precautions and/or Limitations to be observed during the modification implementation that are not normally or routinely encountered in the performance of this type of work. If it is necessary RE shall develop procedure described under 5.10.

5.6.2 Precautions/Limitations that should be considered are:

- plant conditions that must be attained, maintained, or reset during the work activity.
- rough requirements for tagging of affected components for particular activities.
- handling and using hazardous materials that have the potential to

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cause damage to equipment that is the subject of the modification or is in the vicinity of the modification (see ref. 2.13)

- temporary storage of materials that may be damaged by the environment, degraded with time, or cause potential damage, fires for example, to areas or nearby equipment.
- personnel industrial safety.
- capacities of lifting equipment or supporting structures when moving heavy equipment.
- plant technical specification limits.
- Instrumentation and monitoring equipment near welding location shall be identified and reported to MCR prior to start of electro welding.
- Minimal distance between welding location and welding appliance negative pole connection point shall be maintained to prevent impact of electromagnetic waves on nearby instrumentation and monitoring equipment.
- Execution of work on unprotected train (if modification effect both trains), work shall be split in two segments (groups by train) taking into account that work can be performed only on unprotected train.
- Foregin material intrusion into the system (see. Ref 2.18 and 2.19).

5.6.3 A remedial action plan should be detailed along with personnel training requirements when the installation will use hazardous materials.

5.6.4 The System Engineer should be consulted when listing plant system conditions, precautions and limitations.

5.7 Organization Chart

5.7.1 The RESPONSIBLE ENGINEER shall prepare an organization chart depicting the relationship and identity of the personnel for all major interfaces associated with the modification involving the Contractor's organization structure (chart) and its personal if applicable.

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5.7.2 The organization chart shall be prepared for modifications installed by NEK and for modifications installed by an outside contractor.

5.7.3 The organization chart should identify the following as appropriate:

- Responsible Engineer
- System Engineer
- SKV.QA Engineer
- Discipline Coordinator (for modifications installed by outside contractors)
- Discipline Engineer (for modifications installed by NEK)
- Purchasing Commercialist (listed by project IN's)
- Outside Contractor Personnel (listed by Discipline)

5.7.4 The Responsible Engineer or Contracted Installation Organization shall develop forms (statements or tables) before start with installation to fulfill requirements of references 2.8 and 2.10.

5.8 Shift Plan & Definition of Personnel

5.8.1 The RESPONSIBLE ENGINEER shall estimate the manpower required for installation by producing a preliminary shift plan and identifying the type and number of personnel. For installations performed by T0.VZ the Discipline Engineer should be consulted for input to the Shift Plan & Definition of Personnel.

5.8.2 The shift plan and identification of personnel types shall be displayed in table format as shown in Appendix 6.6.

5.8.3 The number of personnel shall be identified by discipline.

5.8.4 The shift shall be identified by specifying the starting and quitting time of each shift using a 24-hour format.

5.8.5 The schedule shall be indicated by using days, not dates, on the horizontal axis. The outage work start date is to be day 1. Work scheduled before the beginning of the outage shall be indicated with negative numbers.

5.8.6 For each discipline the RESPONSIBLE ENGINEER shall estimate the number of people required per shift. This number will be indicated in the column corresponding to the day the activity is scheduled for implementation.

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5.9 Special Procedures

5.9.1 The RESPONSIBLE ENGINEER shall prepare all installation procedures and/or include any vendor prepared installation procedures necessary for complete performing of the installation work. Special installation procedure(s), related to the particular modification, shall be at the top of the IP and generic procedures shall follow them.

5.9.2 Special package shall include applicable procedure(s):

- **O** (Organization Procedure) for installation of modification what include formal (relation between NE Krško - Contractor - Subcontractor as described in 5.8) and functional with interfaces, notification requirements, statements, etc. Also procedure shall describe document distribution, handling with changes deviations and nonconformances. For complex modification organization procedure is part of Installation Project Management Manual, see ref. 2.14.
- **M** (Material Handling Procedure) shall include and describe material shipment, handling, handling of supplied material certificates, material upgrading, detrimental material, inventory control for foreign material, field storage, filler material control storage and handling, marking of materials, turnover of items resulting as spares or excess material at the end of installation job. Requirements for checking, maintaining, updating of BOM (bill of material) list shall be established through whole implementation time which is necessary for particular modification.
- **T** (Transport Procedure should describe how installation parts and equipment will be transported to the place where fabrication or installation shall be performed and which equipment will be used for rigging, lifting an transportation. All necessary data related to main dimensions (overall) and weights of parts or equipments shall be given in appropriate procedure, instruction sheet or drawings for transportation.
- **F** (Fabrication Procedure) should describe only fabrication work necessary to assembly some parts or pieces in one self-standing item (pieces of pipe to pipeline or pipers pool, steel plates to hangers or supports, steel plates to ventilation ducts, etc.).
- **E** (Erection Procedure) shall describe all necessary steps from

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modification such as: erection of cable trays, erection of cable tray hangers, HVAC Ductwork erection, erection of embedded conducts & pull boxes, erection of conduits, erection of pipes, erection of pipe supports and hangers, equipment erection, etc. set of all procedures with described sequences define/create "Work Sequence and Inspection Plan " which is subject for NEK/QA concurrence. After receiving of inputs from NEK/QA RE shall issue "Erection Plan" which include all witness and hold points and cover requirements from 5.3. to 5.7. with detail descriptions.

- **W** (Welding Procedure) shall describe all involved WPS's, PQR's welder qualifications PWHT procedures, delta ferrite measurements anticipated repair procedures, weld location lists with weld designations, etc. Under this letter special technique or technologies used for bonding of materials or treating materials should be described such as: brazing, soldering, heat treatment, cold welding, etc.
- **P** (Painting/Coating Procedures) shall describe all activities related to qualifications, quality control and implementation of painting or coating protection for piping, equipment, welded structures, etc.
- **I** (Insulation/Cleanliness Procedures) shall describe required class of cleanliness and acceptable way how to get it. Also, shall describe all type of insulation, which will be used for particular modification.
- **Q** (Quality Procedures) shall describe all examination; testing and inspection method or control activities related to modification what include all destructive or nondestructive methods. Procedures for flushing of piping or hydro testing of piping could be described under this letter of designation.
- **C** (Civil Procedures) shall describe all civil work with possible testing or control activities related to modification (mark of concrete, concrete blocks for testing, etc.).
- **S** (Special Procedures) could be used to describe activities such as:
 - site acceptance test of complex components (These tests are normally used to confirm the absence of damage due to shipping or handling);
 - vendor supplied start-up (commissioning) procedures
 - installation procedures not covered by existing plant procedures;
 - special quality assurance procedures that are to be used to

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procedures;

- special quality assurance procedures that are to be used to verify construction in progress;
- disassembly/assembly procedures ha are used to dismantle equipment for ease of installation;
- post installation and pre-operational cleaning procedures
- temporary storage procedures
- special training for craft personnel for complex or special work activities.

- **SW** (Safety at Work) Elaborate shall provide responsibilities for safety and describe all relations between NEK, contractors, subcontractors and precautions, safety measures, fire protection guard (see ref. 2.11, 2.20, 2.21, 2.22, 2.23 & 2.15), handling with hazardous materials (see ref. 2.13) from the beginning of installation till the end of installation work. Safety plan shall be prepared and attached to IP (see Ref. 2.24 Attachment 6.3) if applicable.

- **HP** (Health Physics Procedures) should provide results of ALARA Planning for installation of modification and way how to follow actual doses. All other applicable NEK HP procedures shall be followed.

5.9.3 RE or Contractor's organization responsible for installation of modification may use all existing plant or Contractor's procedures previously approved if there are applicable (without corrections).

5.9.4 Site procedures which were achieved from construction phase of NE Krško could be used for reference (In accordance with QA Index site procedures are achieved under A.4.0. Installation Construction Records as QA Records). Designations which were used follow combination: Installation Company - Letter for definition of procedure group - consequential numbers (for example: EM-E-024 "General procedure for valve installation", ATM-W-01 "Procedure for WPS and welder qualifications", DD-E-20.02 "Procedure for piping erection", etc.). All new procedures shall be treated similar under NEK DCM.

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5.10 Start-Up and Test Procedures

Note: Existing plant procedures test and DMP can be used if there are applicable.

5.10.1 The RESPONSIBLE ENGINEER shall include start-up and test procedures to demonstrate that the modification is fully functional and meets all of the design bases characteristics selected to be confirmed by a functional test.

5.10.2 The SYSTEM ENGINEER has the primary responsibility for preparing the test procedures.

5.10.3 The RESPONSIBLE ENGINEER will assist the SYSTEM ENGINEER in preparing these procedures by identifying the codes and standards that control the activities and design, and by defining the acceptance criteria to be used to verify compliance.

5.10.4 The test procedure should include the following sections as appropriate:

- Purpose & Scope
- References
- Responsibilities
- General Instructions
- Prerequisites
- Precautions and Limitations
- Special Tools/Equipment
- Procedural Steps
- Acceptance Criteria
- Drawings, Sketches and Attachments

5.10.5 For very large or complex modifications a system start-up procedure shall be developed and included in the installation package. The SYSTEM ENGINEER has primary responsibility for the development of this procedure. The procedure shall follow the format as described in reference 2.5 and include the following sections as necessary:

- 1.0 - Purpose and Scope
- 2.0 - References
- 3.0 - Responsibilities
- 4.0 - Prerequisites
- 5.0 - Precautions / Limitations
- 6.0 - Special Tools
- 7.0 - Requirements

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<div>Personnel</div> <div>Material</div> <div>Equipment</div> <div>Coordination requirements</div> <div>8.0 - Instructions</div> <div>9.0 - Acceptance Criteria</div> <div>10.0 - Attachments</div> <div>5.10.6Reference tests prepared by the equipment vendor or outside contractors should be included in this section and marked for reference only.</div> <div>5.11 Review and Approval</div> <div>5.11.1Installation package review is to be performed by a peer engineer and SKV.QA engineer. The SUPERINTENDENT ING.MOD shall assign the Peer Reviewer. The peer review is to check for adherence to this procedure and for general content and completeness. Reviewer comments shall be returned to the RESPONSIBLE ENGINEER for resolution. After acceptable comment resolution, the PEER REVIEWER will indicate acceptance by signing the installation package cover sheet.</div> <div>5.11.2Installation package review and its approval is also to be performed by NEK DE(s) specialist for specific discipline if Contractor is preparing IP or helping RE to do it.</div> <div>5.11.3SKV.QA engineer shall additionally check and approve modification's Work Sequence and Inspection Plan and notify inspection steps to be checked by NEK inspectors.</div> <div>5.11.4After peer review the RESPONSIBLE ENGINEER shall forward the installation package to the Superintendent ING.MOD for administrative review and approval. The SUPERINTENDENT ING.MOD will indicate approval by signing the installation package cover sheet or return the package to the RESPONSIBLE ENGINEER for comment resolution. Upon acceptable comment resolution the RESPONSIBLE ENGINEER shall return the installation package to the Superintendent ING.MOD for approval signature.</div>		

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5.12 Installation Package Revision

5.12.1The initial issue of the installation package will be labeled as revision 0. The revision level shall appear on each page of the installation package unless a document is included that itself has controlled pages in which case only the first page shall be indicated with the installation package revision level.

5.12.2Subsequent issues of the installation package revision will receive the same review as the original issue. The cover page shall bear the revision level of the package, individual documents or pages will have the revision changed only if a change has occurred on that page. All changes shall be documented on IP revision status sheet inserted immediately after IP cover page, see Appendix 6.7. The revision should include revised pages only unless the revision is so extensive that to do so would be confusing. In this case, the complete installation package should be revised.

5.13 Installation Package Distribution

5.13.1The RESPONSIBLE ENGINEER shall distribute copies of the approved installation package as directed by the Superintendent ING.MOD.

5.13.2At the conclusion of the modification the original "Master" installation package shall be included in the modification turnover package.

5.13.3Minimum distribution of IP is to TO.VZ and/or Contractor(s), RE, SKV, NEK's Archive.

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5.14 Final Report of installation work

5.14.1 During execution of installation in accordance with Installation Package Final Report could be prepared in parallel.

5.14.2 Cover page shall have at least following information: Title of the Final Report, Modification number, revision number, Responsible organization which prepared the Final Report, Responsible person for preparation of Final Report, Reviewers including SKV.QA if applicable, Responsible person for approval, date of approval, NEK responsible person, contract number if applicable. A sample Cover page shown on Appendix 6.8.

5.14.3 Final report shall consider at least the following:

- A. Table of contents with total number of pages in each chapter
- B. Distribution and revision list
- C. General description of the work and scope
- D. Organization chart
- E. Closed out Work Sequence and Inspection Plan
- F. Qualification of personnel
- G. List of tools and measurement equipment with certificates
- H. List of materials with their certificates included
- I. QC records as required by the Work Sequence and Inspection Plan
- J. Mark-up of drawings
- K. Deviation reports and Nonconformance reports
- L. List of used documents/procedures with their revision status
- M. Other documentation related to the installation

A sample table of contents is shown on Appendix 6.9.

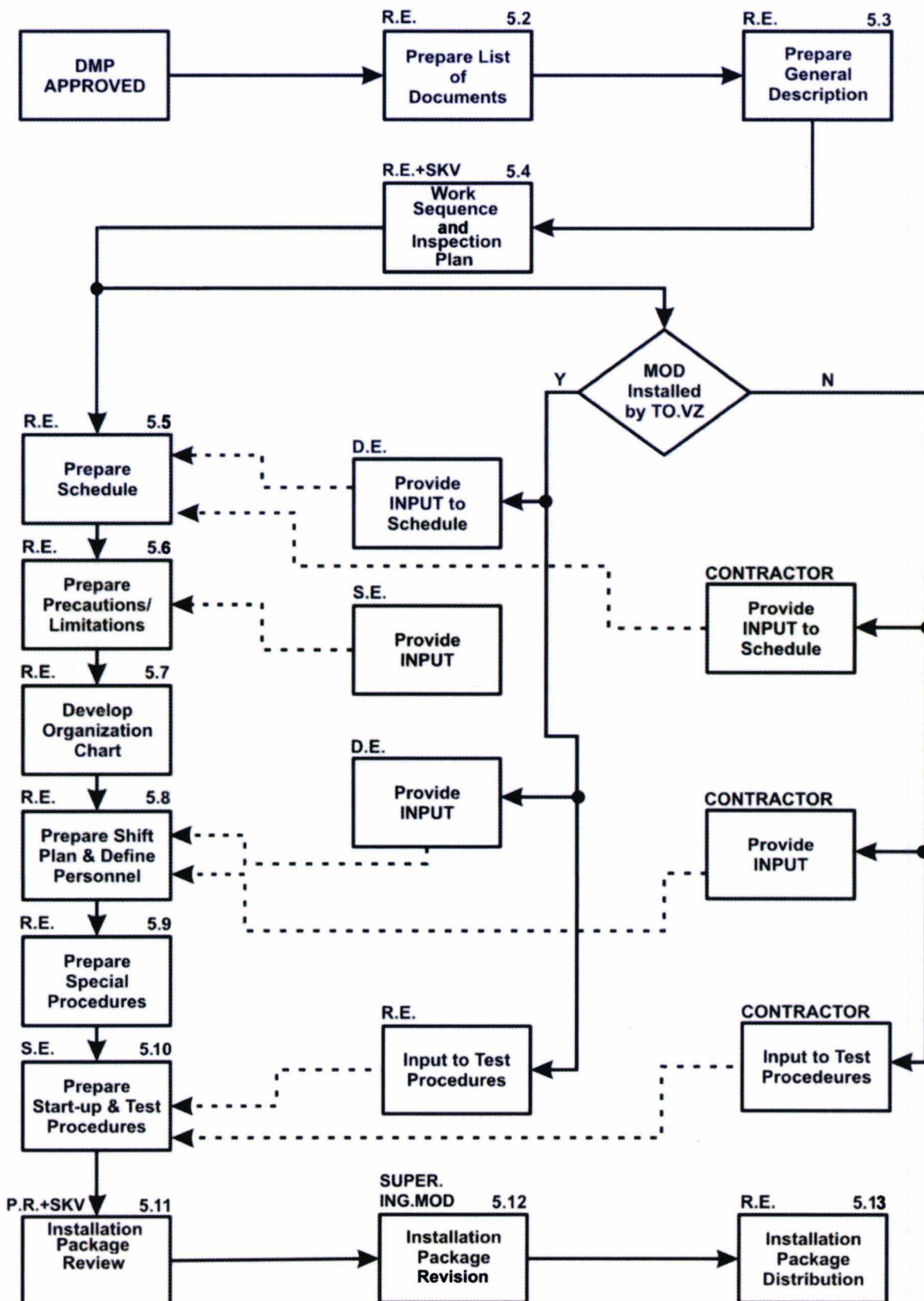
5.14.4 Final report shall be numbered according to ref. 2.4 ADP-1.2.127, "Quality Records Management".

5.14.5 Final report shall be reviewed and approved internally by organization who prepare Final Report.

5.14.6 NEK RE shall send Final report to the SKV.QA engineer for review and concurrence (if applicable).

5.14.7 **After resolving all comments and acceptance of the Final Report NEK/RE will signed cover page of Final Report.**

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<div>6.0 APPENDICES</div> <div>6.1 Process Flow Chart</div> <div>6.2 Installation Package Cover Sheet</div> <div>6.3 Table of Contents</div> <div>6.4 Work Sequence and Inspection Plan (example)</div> <div>6.5 Work Schedule (example)</div> <div>6.6 Shift Plan (example)</div> <div>6.7 IP Revision Status Sheet (example)</div> <div>6.8 Final Report Cover Page</div> <div>6.9 Final Report Table of Contents</div>		



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APPENDIX 6.2
Installation Package Cover Sheet

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INSTALLATION PACKAGE

(project title)

IP (plant mod No. & revision No.) (Discipline Designator)

(Discipline title)

PACKAGE No. _____ of _____

Prepared by: _____ Date _____
(Responsible Engineer)

Reviewed by: _____ Date _____
(Reviewer)

Approved by: _____ Date _____
(Superintendent ING.MOD)

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APPENDIX 6.3
Table of Contents

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INSTALLATION PACKAGE

(Title)

IP No. _____
Rev. No. _____
Page No. _____ of _____

(Discipline Title)

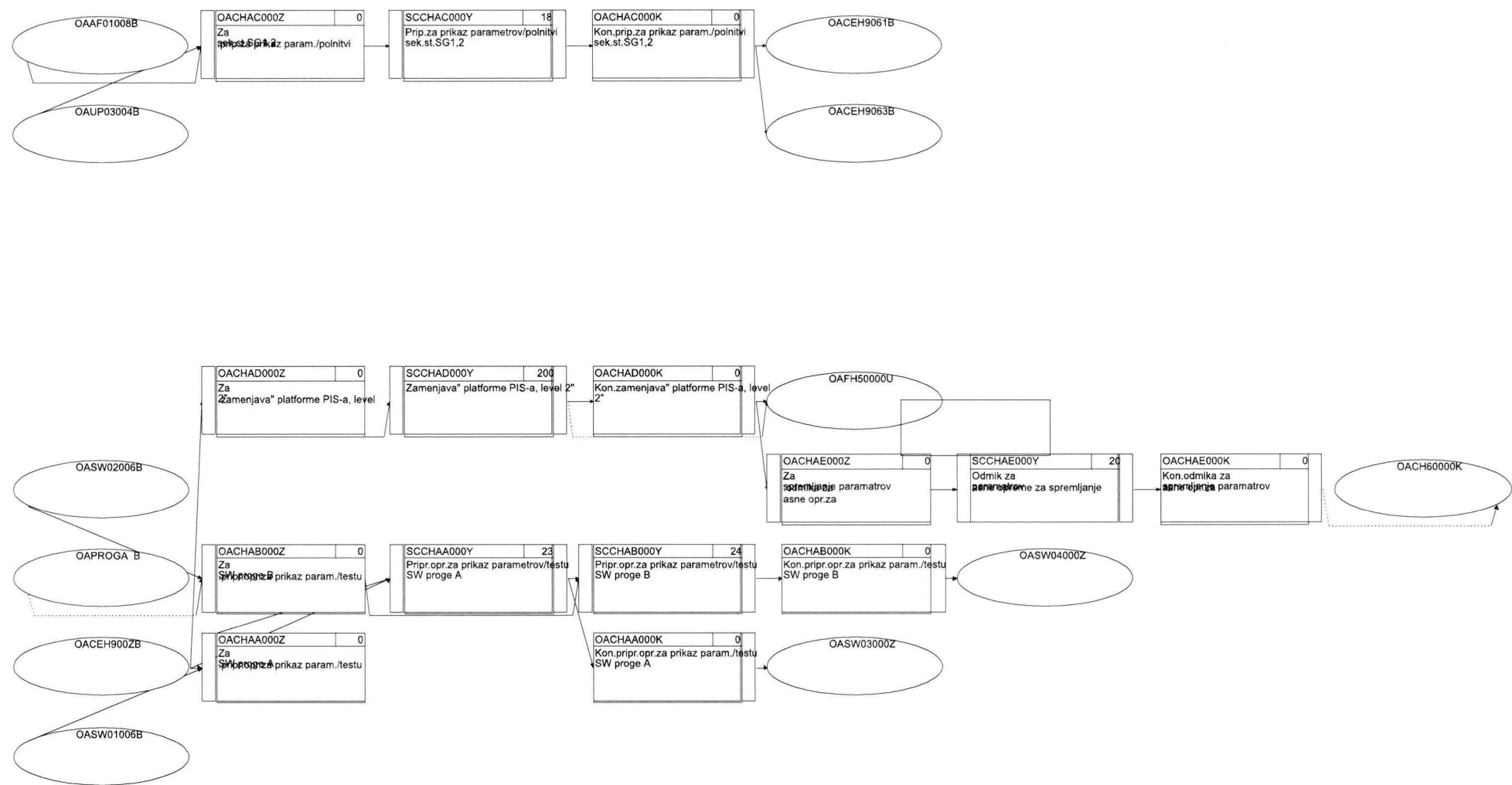
TABLE OF CONTENTS

Section No	Section Title	No.of Pages
A	List of Applicable Documents	
B	General Description of Work and Scope	
C	Work Sequence and Inspection Plan	
D	Time Schedule	
E	Precautions/Limitations	
F	Organization Chart	
G	Shift Plan & Definition of Personnel	
H	Special Installation Procedures	
I	Start-Up & Test Procedures	

ESP-2.619, Rev. 4 APPENDIX 6.4 WORK SEQUENCE AND INSPECTION PLAN (example)

(Company logo)		WORK SEQUENCE AND INSPECTION PLAN		Title: Installation Package IP-164-FP-L-E (example)				Electrical		Page ____ of ____ Rev. __0__		Legend: W - Witness point H - Hold point R - Report S - Stamp S/C - Subcontractor-Executor C - Contractor NEK-(TO, ING, SKV departments)								
Work Step	Insp. Step	Work Sequence Operation and Inspection Step Description	Performed by (NEK TO, VZ or outside contractor)	Requirement and Reference Documents		FME (Y/N)	NEK Work Order	Schedule Activity No.	Rep. Req.	Notification				Report ID	Inspection Name, Signature, Date				NCR	Remark
					Rev.					S/C	C	NEK RE	NEK QA		S/C	C	NEK RE	NEK QA		
1.0		Prerequisites																		
	1.1	Installation Package approved	ING.MOD	ESP-2.619					S	W	W	W	W							
	1.2	Welders qualification	TO.VZST	ASME IX WPS's					R	H	W	W	W							
..																				
..																			
	1.x	Receiving inspection of material		Bill of Material Procurement specifications					R	H	H	H	H							
2.0		Cutting of conduits		Drawing XYZ																
	2.1	Dimensional control		Drawing XYZ Procedure for dimensional control					R	W	W									
3		Welding		Welding diary, WPS, Drawing					R											
	3.1	Welding inspection		WPS, Drawing Inspection procedure					R											
Prepared: Date:				Reviewed: Date:					Approved (ING.MOD): Date:					Approved (SKV.QA): Date:						

[illegible]



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[illegible]

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Final Report prepared by: Nuclear Power Plant Krško

Contract No: _____

FINAL REPORT

(project title)

(plant mod No. & revision No.) (Discipline Designator)

(Discipline title)

PACKAGE No. _____ of _____

Prepared by: _____

Date: _____

Reviewed by: _____

Date: _____

Approved by: _____

Date: _____

Reviewed by NEK: _____

(NEK-Reviewer)

Date: _____

Approved by NEK: _____

(NEK-Responsible Engineer)

Date: _____

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FINAL REPORT	
(Title)	Final Report No.: _____ Rev. No.: _____ Page No.: _____ of _____
(Discipline Title)	

TABLE OF CONTENTS

Section No	Section Title	No. of Pages
A	Table of contents	
B	Distribution and revision list	
C	General description of the work and scope	
D	Organization chart	
E	Closed out Work Sequence and Inspection Plan (WSIP)	
F	Qualification of personnel	
G	List of tools and measurement equipment	
H	List of materials	
I	QC records as required by the Work Sequence and Inspection Plan	
J	Mark-up of drawings	
K	Deviation and Nonconformance reports	
L	List of used documents/procedures	
M	Other documentation related to the installation	