



DESIGN AUTHORITY

(INTRODUCTION)

- Design Authority dept. and its integration
- Main objectives and conditions of the DA dept. establishment
- Responsibilities of Design Authority dept.
- Key topics of DA dept. in the LTO NPP Dukovany license process
- Challenges and opportunities of the DA dept.

Design Authority Department

Central Engineering

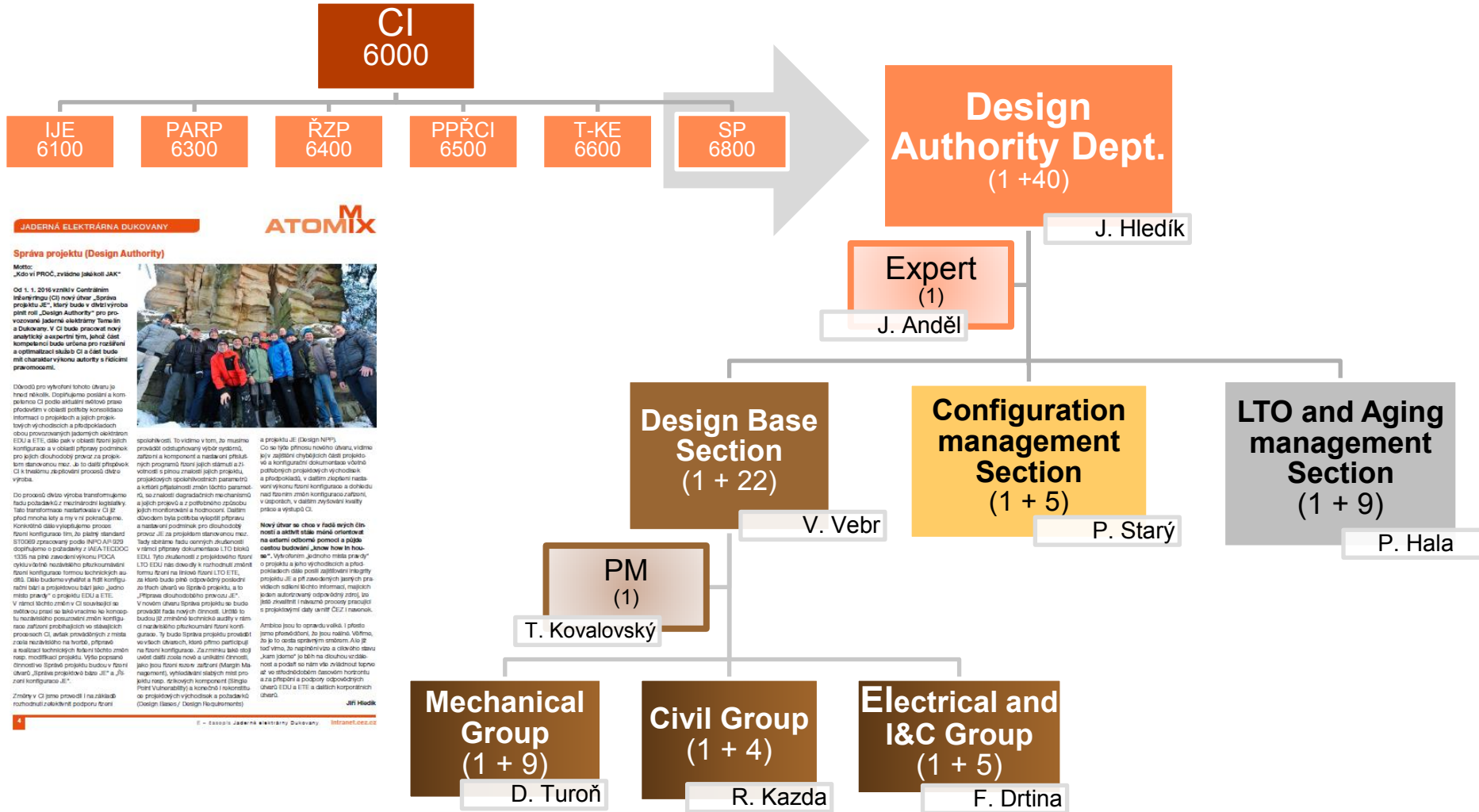
Generation Division of CEZ

October, 2016

Design Authority dept. and its integration



WHO we are and WHERE we belong



Main objectives for the DA dept. establishment

WHY was DA department set up



- ❖ Extend scope of CI dept. for the new role of „Design Authority“ (DA).
- ❖ Add activities and raise up the level of the configuration management of the existing NPPs for the new requirements and approaches of the latest legislation frame.
- ❖ Create „one place of truth“ about the NPP Design and its Design Basis and Requirements (DB/DR) and set up the conditions for using this information to all relevant processes.
- ❖ Independent verification of the selected SSC configuration changes.
- ❖ Optimize and permanent increase the level of aging management and lifecycle management of the SSC in accordance with the new requirements of the equipment reliability management (ERM).
- ❖ Create and update the Documentation of LTO program for EDU (AMR) without external support.
- ❖ Prepare the basis for the LTO program for ETE.
- ❖ Build up know how „in house“.

Conditions for the DA dept. establishment

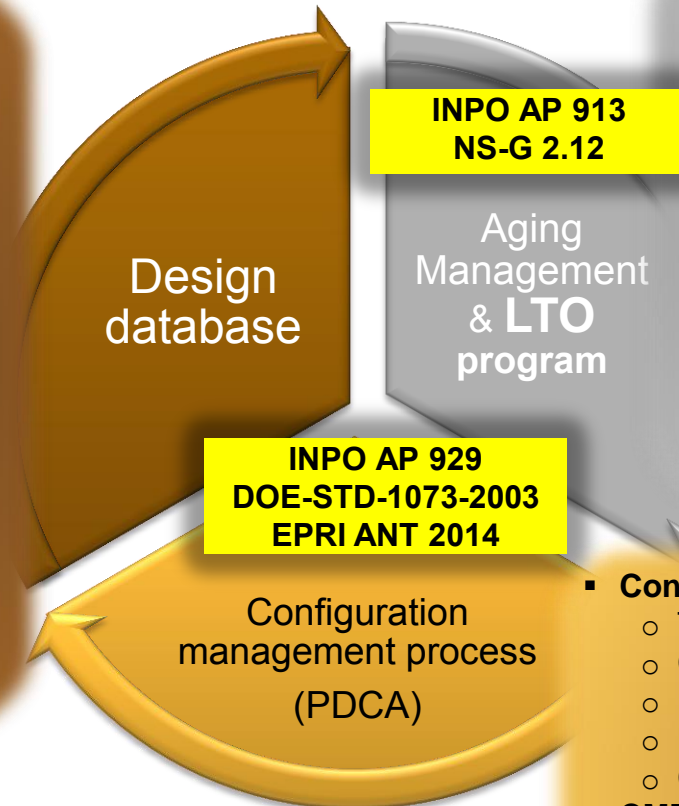


1. DA role in the CI is executed by Design Authority dept. for **both operated NPPs** EDU and ETE.
2. Establishment of the Design Authority dept. is fully in compliance with the **program of permanent improvements** in the Generation Division of CEZ.
3. Legislation frame for Design Authority is defined and consists of the requirements of the activities, skills and qualification of personnel.
4. Existing processes in CI are expanded to include:
 - **Configuration management and Design Basis**
Legislation: INPO AP 929 + DOE-STD-1073-2003 + EPRI ANT 2014
 - **Long Term Operation and Aging management**
Legislation: INPO AP 913 + NS-G 2.12

Responsibilities of DA dept.



- **DBD** => Reconstitution, maintenance and evaluation of safety aspects of the design and design basis including margin management for the PSAR and PSR
- **CM** => Independent evaluation of modifications
- **ERM** => Scoping SSC and setting of reliability management, SPV, documents for the LTO program (AMR, TES)



Aging Management Programs (AMPs)

- Scoping and setting of design parameters
- Creation and development of AMPs in accordance with best practice and R&D
- Results from AMR, TLAA, AMPs as inputs to Health Reports of SSC
- Feed back and improvement of effectivity and efficiency of AMPs

LTO program

- Scoping and screening of LTO program
- Creation and development of LTO documentation (AMR, TLAA) including safety aspects of LTO (SALTO)
- Negotiation of all LTO documentation during licensing process

Configuration management program (CMP)

- Terminology, rules, principles
- CM elements identification
- KPI definition
- Related processes establishment
- CMP implementation
- **CMP implementation**
 - DDD establishment Inc. using and sharing
 - Change management
 - IT support documentation
- **Evaluation of CMP and check of KPI**
- **Improvement of CMP**

Key topics of DA dept. in the LTO EDU license process

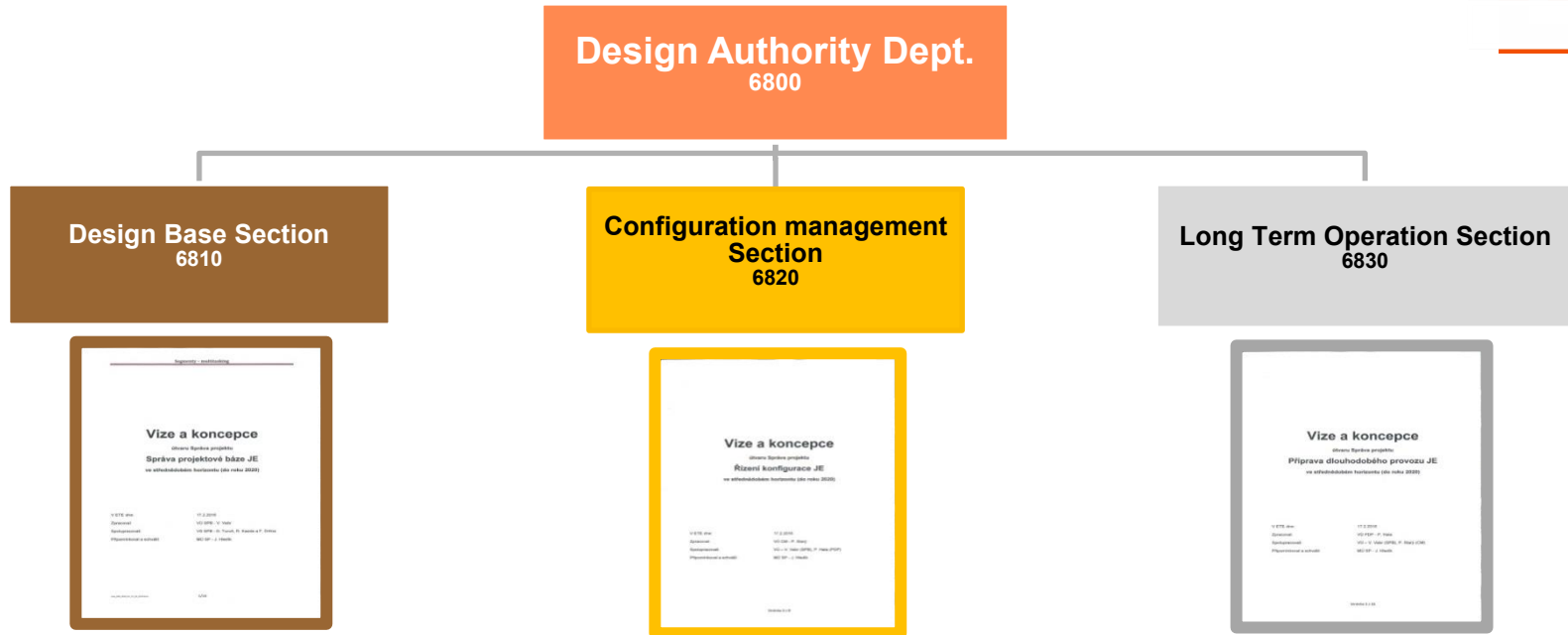
„TOP THREE“



- 1. Fulfilment conditions from the „SUJB Decision“ for the LTO of the 1st EDU unit:**
 - Update and completion of the codes and standards
 - Reconstitution of the design basis and design requirements (DB/DR)
 - Margin management of SSC
 - Proving the conformity of SSC with the design requirements
 - Increase the level of ageing management of NPP civil structures
 - Update the safety classification equipment list in accordance the valid legislation
- 2. Creation the Documentation of LTO program for EDU (AMR, TLAA) for licensing process for the other units.**
- 3. Creation of basis for the LTO „line management“ including:**
 - Solution of the corrective action from the mission SALTO and the „EDU LTO Action Plan“
 - Solution of conditions from the „SUJB Decision“ for the EDU LTO
 - Update of documentation of LTO EDU Program

Challenges and opportunities of the DA dept.

WHAT is important is in next 5 years



1. Reconstitution of DB/DR and creation of „one place of truth“ about the NPP Design.
2. Performing the independent reviewer role of the significant NPP configuration changes.
3. Supporting activities for other important issues.

1. Program CM 2020

- creation / setup / implementation
2. Verification of NPP configuration
3. Evaluation of CM
4. Improvement of CM
5. CMIS implementation

1. Efficient aging management in the frame of ERM
2. Routine LTO management as the core business of the LTO department

Optimalization and capacity management, new experts education, know how sharing

Abbreviation	Meaning	Abbreviation	Meaning
AMP	Aging Management Program	NO	Corrective action
AMR	Aging Management Review	NPP	Nuclear power plant
CI	Central Engineering	NTD	Codes and standards
CM	Configuration management	PDCA	plan–do–check–act
CMIS	CM Information System	PLIM	Plant Life Management
CMP	CM Program	PLEX	Plant Life Extension
DA	Design Authority	PpBZ	Pre-operation Safety Analysis Report
DOE	Design of Experiments	PM	Project Manager
DBD	Design Basis Document	PSR	Periodic Safety Review
DB / DR	Design Basis / Design Requirements	SALTO	Safety Aspects LTO
DDD	Design Data Database	SSC	System, Structure, Component
EDU	Dukovany NPP	SP	Design Authority Department
EPRI	Engineering Power Research Institute	SPB	Design base Section.
ERM	Equipment Reliability Management	SPV	Single Point of Vulnerability
ETE	Temelin NPP	SPrP	Summary Proof of Preparedness for the LTO's licensing process
HR	Health Report	SSC	System, structure, component
IJE	NPP engineering	SÚJB	Regulatory Authority Czech Republic
IT	Information Technology	SVZ	Safety classified equipment list
KPI	Key Performance Indicators	SW	Software
LCM	Life Cycle Management	TES	Technical and Economical Analysis
LTO	Long Term Operation	TLAA	Time Limited Aging Analyses



Thank you



Who knows „WHY“, knows „HOW“



BACK UP



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Expected benefits



- 1. Increase the quality of the CM, LTO, LCM, ERM processes**
- 2. Restoration of the missing design documents and data**
- 3. Ensured savings by using our own engineering capacities**

Added value of the „new“ DA dept. is also due to:

- independent reviewing of planned configuration modifications
- creation of the „one place of truth“ about the Design of NPP → Design base establishment
- creation of the new rules for the design information sharing and use
- systematic verification of NPP configuration
- decreasing the number of discrepancies in NPP configuration
- reconnection of the PLIM/PLEX and LTO project
- support for the equipment reliability management
- build up know how „in house“

Areas of NPP design authority responsibility



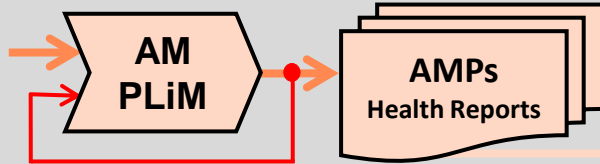
Equipment Reliability Management (ERM)

Scoping and setting of SSC for ERM
Aging Management (AM) as a part of ERM
LTO preparation

INPO AP 913
NS-G 2.12



- Scoping and screening for LTO program
- Creation and development of LTO documentation (AMR, TLAA) including safety aspects of LTO (SALTO IAEA)
- Negotiation of all LTO documentation during licensing process



- Scoping and setting of design parameters for all programs
- Creation and development of AMPs in accordance with best practice and R&D
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INPO AP 929
DOE-STD-1073-2003
EPRI ANT 2014

- Design requirements and basis restoration
- Design consolidation and completion
- Design data management
- Margin Management of important SSC
- Single point vulnerability of design and risk SSC
- Safety aspects of design evaluation
- Configuration management process (PDCA)
- Independent assessment of significant design changes



**Independent Design Authority role
incl. DDD management
NPP Configuration management**

