



# **USAR Managing and Updating Process**

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## **ABSTRACT**

In this paper basis and background of the FSAR (Final Safety Analysis Report) document and its conversion process to the USAR (Updated Safety Analysis Report) document are described. In addition, there are internal and external reviews as well as approval process presented.

The following is included in our new approach to manage USAR changes: initiating the USAR change, technical reviewing, preparing a safety evaluation, KSC (Krško Safety Committee) and KOC (Krško Operating Committee) review, ESD Director approval, and the Regulatory Body review or approval.

The intensive technological modification activities started in the year 1992 when the NEK Engineering Services Division was established. These activities are one of the most important reason for a very intensive USAR items change. The other reason for its conversion to an electronic format is a possibility for easier and faster searching, updating and changing process and introducing a new systematic USAR managing approach as mentioned above.

## **1.0 INTRODUCTION AND DEFINITION**

Based on several requirements (regulations, regulatory body and NE Krško initiatives) decision for Safety Analysis Report (SAR) update was made.

Review of the NEK SAR status in 1991 identified the need for systematic, integrated and long term activities which will assure that past as well as future changes to the plant and plant documents will be adequately reflected in the NEK SAR.

The following major activities were performed for the successful implementation of the project:

1. Identification, documentation and reporting of all changes to the plant and plant documents which were not described in the FSAR as submitted to regulatory body;
2. Preparation of the corresponding USAR text for each identified change and corresponding review and approval process;
3. Conversion of the FSAR text, drawings and figures to the electronic media and incorporation of all changes into the revision 0 of USAR;
4. Introduction of systematic and integrated process for all future changes to the USAR and preparation of associated revisions.

The overall project was completed in a two year period by the NEK architect engineer Gilbert/Commonwealth and NEK.

### Change Package

A package of each individual change which modifies the USAR. Each change package contains: a cover sheet, mark-up copies of all affected pages of the USAR, the list of source documents for the change and list of references and Safety Evaluation Screening and Safety Evaluation package.

### FSAR

Final Safety Analysis Report. The Safety Analysis Report originally prepared for the Licensing of Krško, including any revisions or changes made prior to February 1, 1992 and submitted to the regulatory body.

### USAR

Updated Safety Analysis Report (USAR) is based upon the existing FSAR, but is updated to include all applicable changes to the plant and plant documents.

## **2.0 START OF PROJECT**

For that big project, Krško NPP prepared the program which was based on the following assumptions:

- a. USAR has to follow the content and format of FSAR;
- b. All changes and modifications which are implemented at least 6 months before USAR issuance have to be incorporated in USAR rev.0;
- c. New document, USAR, rev.0, will be the basic document for all future revisions;
- d. USAR has to be prepared in such a way that revision process for future USAR revisions is easy, and that tracking of each change and revision is available.

The FSAR to the USAR conversion process included all of the following activities:

- a. magnetic media storage;
- b. computer text processing;
- c. computer figures processing;
- d. modifications review;
- e. limiting conditions for operation review;
- f. FSAR figures conversion into electronic format (CADD) ;
- g. procedures development;
- h. implementation of changes of Chapter 4 (reactor core, VANTAGE 5 - IFBA fuel, enhancement in thermal-hydraulic analysis...) and Chapter 15 (safety analyses, NRC RG 1.70, rev.3 format, 18% SGTP criteria implementation, etc.).

The first step was updating the USAR procedure development. After that, the detailed review of implemented modifications, license amendments, charts and diagrams and limiting conditions for operation were performed. This approach included the USAR Change Packages preparation which were necessary for the USAR changes.

About 200 of the most important flow diagrams and charts (drawings) as part of the USAR modernisation program were reviewed and converted to CADD electronic format involving the Krško NPP personnel training and procedures development.

After all these activities the NEK USAR, rev. 0 was fully prepared and issued.

The benefits of USAR issuance are:

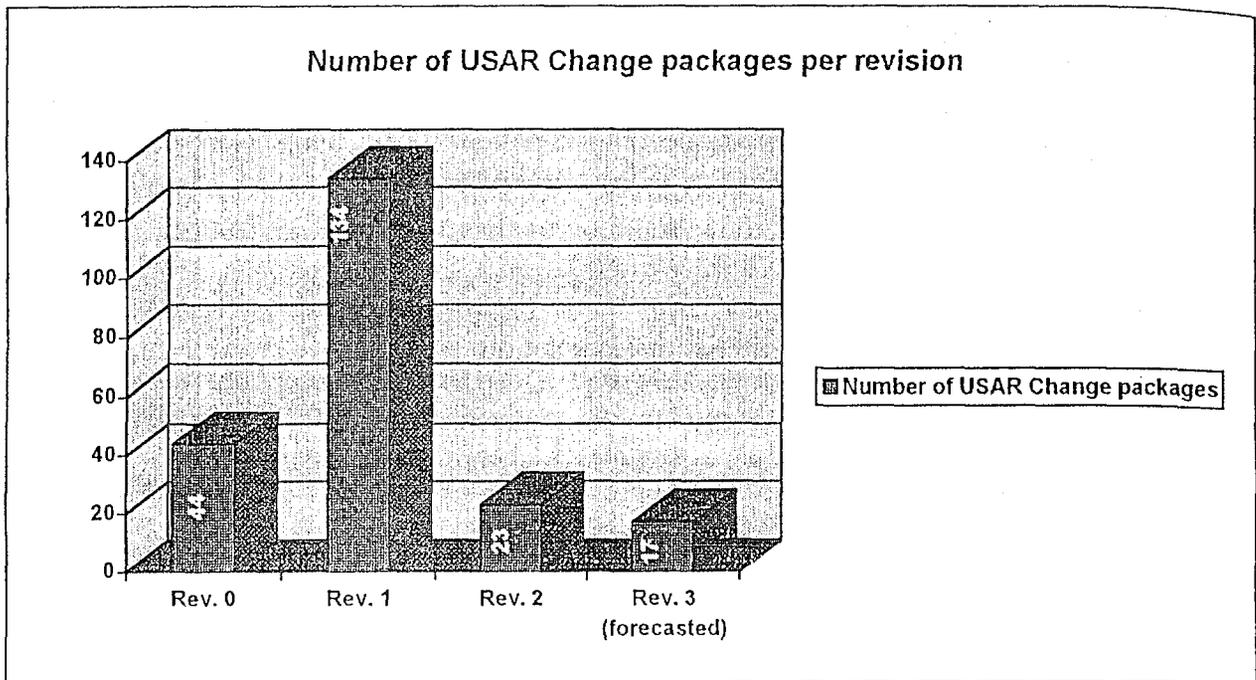
- a. an excellent basis for future revisions and computer searching is enabled,
- b. all changes in the USAR are documented,
- c. effective pages control is implemented,
- d. the USAR change packages as the USAR change process are incorporated and the approval process is fully defined and documented,
- e. new procedures for the USAR changes are developed,
- f. flow diagrams are updated and converted to electronic format.

The USAR, rev. 0 was issued with the effective date of October 26<sup>th</sup>, 1992.

In accordance to the before mentioned procedure, the revisions 1 and 2 of the USAR were issued with effective date of September 1<sup>st</sup>, 1994 and August 3<sup>rd</sup>, 1995, respectively.

In figure 1 the number of change packages per revision is shown.

Figure 1

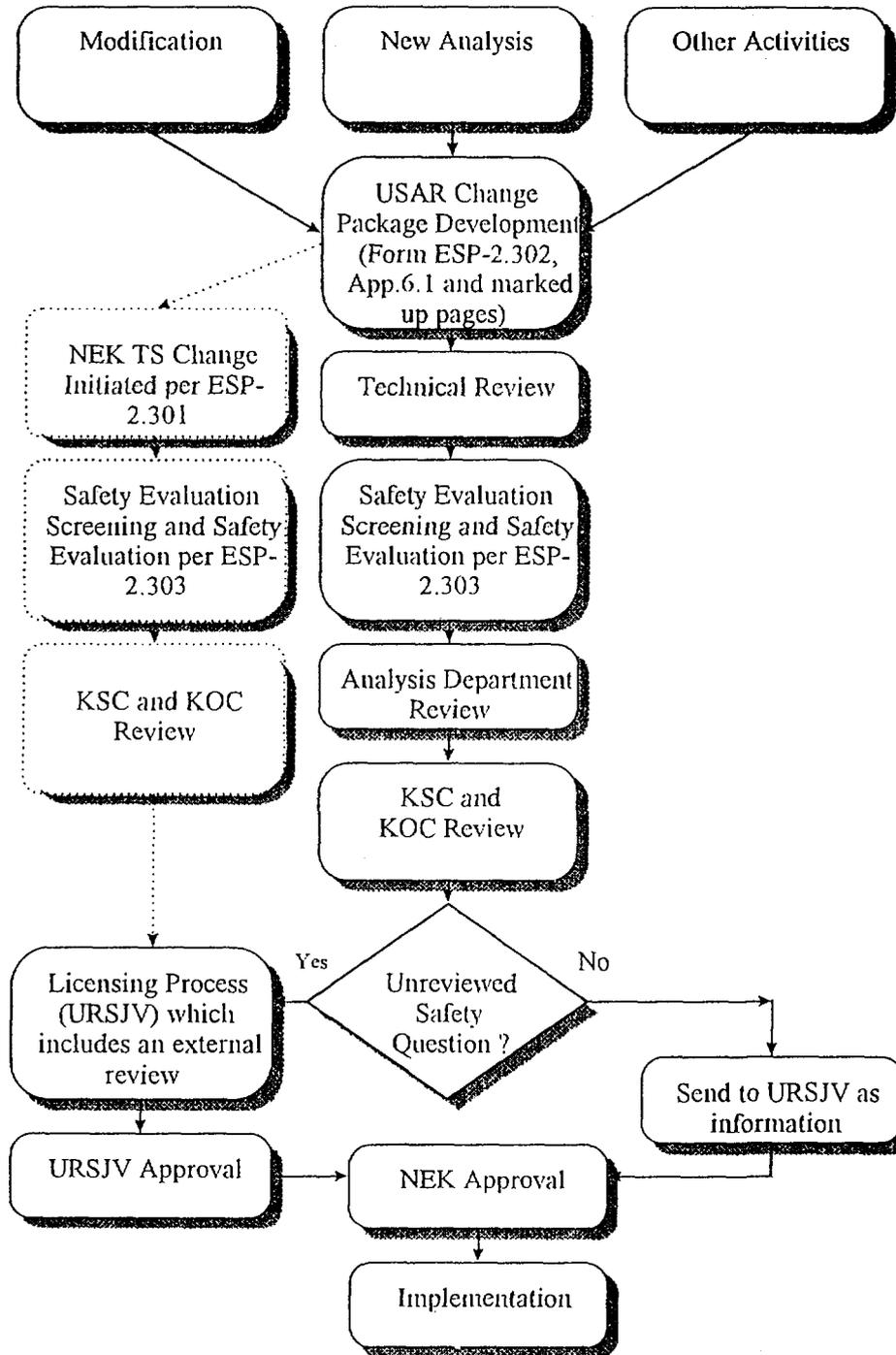


### 3.0 USAR CHANGE PROCESS

The new procedure ESP-2.302 ADMINISTRATION OF CHANGES TO THE USAR is developed to assure that USAR Change process is in accordance with 10 CFR and the Slovenian law and that each step of a process is controlled and well managed.

In Figure 2, the USAR Change process flow - chart is shown.

Figure 2



There is necessary to highlight that Pravilnik E2, PRAVILNIK O IZDELAVI IN VSEBINI VARNOSTNEGA POROCILA IN DRUGE DOKUMENTACIJE, POTREBNE ZA

UGOTAVLJANJE VARNOSTI JEDRSKIH OBJEKTOV, Official Gazette SFRJ 68/88, defines three change categories of the USAR:

- a. changes which may be implemented without prior approval of regulatory body and regulatory body has to be informed of that changes after implementation,
- b. changes which may be implemented without prior approval of regulatory body and regulatory body has to be informed of that changes before implementation,
- c. changes which must not be implemented prior approval of regulatory body.

Because there are no criteria for categorisation, Krško NPP decided to implement the 10 CFR 50.59 rule. For that purpose, the new procedure ESP-2.303, AUTHORIZATION OF CHANGES, TESTS AND EXPERIMENTS (10 CFR 50.59 REVIEWS) was developed. The adoption of that rule in the specific case of the USAR changes is shown on previous flow chart in Safety Evaluation Screening and Safety Evaluation preparation step.

Krško NPP takes the following approach: if an unreviewed safety question appears, the whole licensing process starts; if there are no unreviewed safety questions, the regulatory body is informed about the modification or other activities which involve the USAR change, and the USAR Change Package is sent to the Regulatory Body before the USAR change is implemented.

## 4.0 FUTURE ACTIVITIES

Of course, after all that hard work which has been done, there is some work still remaining for the future. Our wish is to fix all eventually missing information to get the best possible document representing Krško NPP, and we will keep working very hard to reach our goal.

In order to intensify the usage of the USAR, the continuous activities of the USAR updating as well as before mentioned procedures enhancement are in progress. In addition, Krško NPP plans to transform all the USAR chapters and drawings to a special electronic format, called HTML which will be used in Krško NPP IntraNet system. That will allow everybody who will have the access to use the Krško NPP IntraNet to full text and drawing searching, copying and printing any part of Krško NPP USAR.

## 5.0 REFERENCES

- 5.1 Title 10 Code of Federal Regulations;
- 5.2 Regulatory Guide 1.70, Rev. 1 and Rev.3;
- 5.3 ESP-2.301 "Technical Specification Changes and Licence Amendment";
- 5.4 ESP-2.302 "Administration of changes to the USAR";
- 5.5 ESP-2.303 "Authorisation of changes, tests and experiments (10 CFR 50.59 reviews)";

6. Pravilnik E2, 'Pravilnik o izdelavi in vsebini varnostnega poročila in druge dokumentacije, potrebne za ugotavljanje varnosti jedrskih objektov', Official Gazette SFRJ 68/88;