



FOCUS

EXCHANGE OF OPERATING EXPERIENCE

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Nuclear power engineering can serve as a magnificent example of self-perfection founded on its own operating experience (OE) accumulated throughout the years. This industry has developed complete systems for control of activities and subsequent analysis, aiming at continuous improvement. This can be achieved in an atmosphere of transparency the entire professional community in the world making use of the databases created so far. There is a system in place for training seminars, technical deliberations and meetings for renewal of documentation concerning all areas of interest. Special attention is paid not only to operation and maintenance of equipment but also to human performance in relation to its continuous improvement. Information with regard to good practices as



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well as the problems arising in the industry is timely distributed.

Exchange of information, related to nuclear utilities takes place in various ways. The main bulk of information, regarding operational deviations in plants worldwide is exchanged via WANO (World Association of Nuclear Operators) channels.

Ever since 1989, (when the Association was established to enhance safety and reliability of plants), operation of nuclear utilities has been changing for the better thanks to efficient internal communication as well as to the exchange of information, proving nuclear to be a reliable source of energy and a significant factor for the environmental protection.

The OECT (Operating Experience Central Team) established with WANO, analyzes the information and distributes the conclusions made amongst the members, thus enabling common issues and trends to be pinned down. In latest years there is the tendency the amount of events reported and published to be growing, totalling more than a thousand a year now.

Types of information used to exchange operating ex-

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GENERATION FOR 2008

UNIT 5 ~ 7 858 000 000 kWh
UNIT 6 ~ 7 907 000 000 kWh
TOTAL – 15 765 105 200 kWh

NEW WEBSITE





FOCUS

perience

The types of information published on the WANO page include:

- SOER (Significant Operating Experience Reports) – these combine several similar significant events at different plants. Together with plant representatives the OECT performs in-depth analysis of the causes and compiles a joint document, containing recommendations that need to be reviewed within the Peer Reviews.

- SER (Significant Experience Reports) – related to one significant event at different plants. Together with plant representatives the OECT performs in-depth analysis of the causes. This results in a document with the recommended corrective actions in it and a training course.

- Hot topics – information, collected with regard to a hot for that particular moment topic or a trend manifested in a specific type of problems that have arisen in certain plants - “Control of reactivity”, for instance.

- JIT - Just in Time – operating experience for selective instructions. Those are published WANO documents, containing selected information on operational

violations in several plants with similar events. The objective is personnel to get familiarized with the existing risks and the possible consequences of errors as well as to emphasize the necessity to implement various methods to reduce their probability.

- EAR - Event Analysis Report, ETR (Event Thematical Report and MER (Miscellaneous Event Report – these are published within 4 weeks after the event and are actually the initial information for the other types of reports that have to be prepared.

Information on OE can also be obtained from other sources, such as the IAEA (International Atomic Energy Agency and its data base - IRS (Incident Reporting System), reports from national regulatory bodies or equipment vendors. Good practices in the industry are being spread via the information channels of OECD (Organisation for Economic Co-operation and Development) and NEA (Nuclear Energy Agency) as well. The seminars and technical meetings, the WANO technical support program and our participation in the peer reviews contribute to a great extent to the enhancement of safety culture, improvement of

operational indicators and in the prevention activities with regard to issues that have already occurred elsewhere.

After information is processed at the various consecutive stages operating experience is included to be a part of the everyday activities performed. Every effort is made so that operating experience (either external or internal) is collected, accumulated, analyzed and integrated within the well constructed multi-level self-assessment and feedback database of the system as established at Kozloduy NPP. The system itself as well as the results of these activities deserved a series of positive comments, including international appraisal. This has resulted in the high assessment of the safety level of the units in operation. The downtime due to events or maintenance activities has been reduced to the minimum, this indicator ranking Kozloduy NPP among the best in the world. These are the results of the effort put forth by all Kozloduy NPP experts and their broad knowledge of all technical improvements and good practices worldwide.





OPEN TO THE WORLD

WANO PROFESSIONAL FORUM

Within the period 14-16 October 2008 a workshop was organized in the training Center of KNPP by WANO Moscow Center under the heading Using of system for self-assessment indicators in the decision-making process in NPP. It was aimed at exchanging information and experience in this area and

analyzing the status of processes in NPPs thus contributing for their better management. The participants were from Balakovo NPP, Kursk NPP, Leningrad NPP, Rovno NPP, Khmelniyskiy NPP, Zaporozhe NPP, Paks NPP, Bohunice NPP, Rosenergoatom, VNIIAES etc.



INTERNATIONAL MEETING ON DECOMMISSIONING



The international meeting on decommissioning issues was held in Varna from 22nd to 29th September. It was organized by the company INTERATOMENERGO. Nuclear experts from Bulgaria, Russia, Ukraine, and the Czech republic visited Kozloduy NPP site. They had a site tour, meetings and discussions about the decommissioning process for the closed units in KNPP and the related international decommissioning funding programmes.

SIXTH BULGARIAN-BULGARIAN-RUSSIAN WORKSHOP ON EXCHANGE OF EXPERIENCE

The sixth technical Bulgarian-Russian workshop was held from 29th September to 2nd October and it was related to the use and implementation of the new generation of nuclear fuel for reactors type WWER-1000. The traditional seminar was hosted by Kozloduy NPP. The Bulgarian participants were from KNPP, BNRA, INRNE and BAS. The Russian participants were from Rosenergoatom, Kurtchatov Institute, TVEL Corporation, Gidropress etc.

Eighteen reports were delivered during the forum. The subjects of the reports were related to the status, development and improvement of the fuel assemblies manufacture technology, operational experience from the use of WWER-1000 nuclear fuel etc.





NEWS

KOZLODUY NPP PART OF THE BULGARIAN ENERGY HOLDING



On September 18th, 2008, the decision of the Economy and Energy Minister was announced for establishing the Bulgarian Energy Holding Plc., (BEH Plc.). The structure of BEH includes Kozloduy NPP Plc, Maritz-East TPP 2 Plc, Maritz-East Mines Plc, Bulgartransgas Plc., Bulgargas Plc, Bulgartel Plc and the National Electricity Company Plc. The holding was established in pursuance of a decision of the Council of Ministers of the Republic of Bulgaria, February 13th, 2008 for consolidation of energy companies. The aim is to maintain and develop the competitive advantages of Bulgarian Power engineering, its position on the regional and European energy market and comply with the requirements of the European and national

legislation. The strategic goals are to become the main factor in the energy sector for this region, to achieve higher efficiency and quality of energy services, optimize costs and introduce new modern mechanisms to attract investments. The operational goals are related to improvement of the results of the consolidated group of companies and are aimed at transparency and good management practices, improvement of regulation, activities efficiency and effectiveness, increasing the investment potential; enhancement of human resources quality. The restructuring model approved by the council of Ministers has two phases: first BEH Plc. will be structured as a financial holding within which the companies remain independent legal entities, being completely operationally independent, having individual licenses issued and subject of activity. The separate companies shall be a hundred per cent property of the holding company and shall be directly subordinated to BEH Plc. The second phase shall include strengthened integration and transition to operational holding.

FOUR YEARS ON THE LIBERALIZED ELECTRICITY MARKET

On September 18th, 2008 Kozloduy NPP celebrated four years on the liberalized market of electricity. KNPP was the first officially registered commercial participant—Producer Category. Since the opening of the market in 2004 by the end of August 2008 KNPP has provided within the contracts con-

cluded with eligible consumers and traders and within the quotas determined by the SCEWR 11 742 375MWH of electricity at unregulated prices. The annual share of the net effective electricity sold at the deregulated market in the country has grown from 5,8% in 2005 to more than 30% in 2008. The major part of the electricity is supplied for the regulated market.

RADIOECOLOGICAL MONITORING MEETING

A four-day forum on radioecological monitoring was conducted. The participants were from the Ministry of Environment and Waters, Bulgarian Nuclear Regulatory Agency, National Center on Radiobiology and Radiation Protection and Kozloduy NPP. Some of the issues discussed were report on the implementation of the programmes for radioecological monitoring, radiochemical and instrumentation methods for analysis, compliance of the available methodology, instrumentation and work force with the requirements of the EC recommendation in Euratom 2004/2. The status and the perspectives for development of the National Automated system for continuous control of the radiation background have been also discussed. In result of the sampling and the data from the comparative studies the following conclusions were made: there are no negative trends compared to 2007; the radioactivity of the environment components studied is within the natural radiation background; the results received from the independent monitoring performed by KNPP, NCRRP and MEW are almost one and same; all organizational and technical events necessary for the radiation monitoring of releases into the environment have been undertaken in Kozloduy NPP in order to meet the European requirements.





VISITS ROUND-UP

PARTICIPATION IN WANO PEER REVIEWS

The Bulgarian Nuclear power plant representative in the team of experts for **Tianwan NPP WANO Follow-up Peer Review** was **Mr. Stoyan Genov**, Deputy Head PMU, Decommissioning Division. The aim of this review was to assess the changes made after the pre-start peer review in May 2006.

Mr. Georgi Valtchev, Chief Expert, Radiation Protection was invited by WANO -Moscow Center to take part as an expert in Higashi-dori NPP Peer Review, organized by WANO-Tokyo Center. The other experts were from Japan, the USA and England, representatives from WANO Centers in Atlanta, Paris and Moscow.

WANO Peer Review Programme being one of the fundamental programmes of the organization, continuously proves its effectiveness by providing exchange of information, experience and good practices both for the experts and the plant reviewed thus enhancing safety and reliability of NPPs operation.



KNPP SPECIALISTS ON A STUDY VISIT IN UK PLANTS

Ten experts from Kozloduy NPP took part in a workshop in the United Kingdom from 10th to 16th of November 2008. The purpose of the meeting was to gain experience in decommissioning and RAW management. This visit was organized by VT Nuclear Services that is KNPP consultant through the project management, funded by the KIDSF. The UK government policy related to decommissioning, RAW characterization, treatment and storage was explained. The Bulgarian experts learned more about the practices in the laboratories for characterization of low and intermediate RAW and methods of their conditioning on Sellafield site. They visited also the National Repository for low radioactive waste.

A day of the visit was spent on Hunterston site, Scotland to learn more about the decommissioning project there. The repository for temporary storage of intermediate RAW is located on the same site. The Bulgarian experts had a unique opportunity to get inside, before its commissioning.





NEWS

KNPP OPEN DAY



The second open day for 2008 was on 11th October . 462 people from many different towns in Bulgaria visited KNPP site. There were also visitors from Great Britain and Italy. During the tour they saw 440 MW Units 3 and 4 and the 1000 MW Unit 5 guided by experts and specialists from the plant. They showed great interest in the aerosol sampling and control measurement performed in the mobile lab by the specialists from the Environmental Monitoring Department as well as in the demonstrations of the fire Protection service .

More than 40% of the visitors were led by their parents. We were glad to meet these little children and students who had come to see the plant and learn more about nuclear power because it proves the trend that more and more young people show interest in NPP operation.



Macedonian students visited KNPP

On November 21st 2008 students and professors from the Electrical Engineering and Machine Faculty at the State University “St. Cyril “ in Skopje, the Republic of Macedonia visited KNPP.



“We will be glad if these visits become a tradition because our students show keen interest in this high technology for electricity generation . I believe that the development of nuclear power engineering shall contribute for the economic growth in the region and the world.”



NEWS

EMERGENCY TRAINING

The annual emergency training was held on December 4th on the plant site in accordance with the requirements of KNPP Emergency plan. It was aimed at reviewing the preparedness of the emergency response personnel for organizing and coordinating the activities of KNPP emergency response teams and the other external in companies in case of a radiation accident. The plan included a drill of the activities of the emergency response teams and the other staff in case of fire in the trench spent fuel at SE RAW.

During the drill the accident management and personnel protection activities of the emergency response team were demonstrated. The internal and external communication with the regional and national specialized structures was successfully carried out from the Accident Management Center. The activities and the coordination of each team will be analyzed in order to optimize the



Coordination of activities from the Accident Management Center

overall emergency activities.

The training was monitored by the parliamentary commission on the disasters and accidents.



BULGARIAN NUCLEAR ASSOCIATION CONFERENCE

The Bulgarian Nuclear Association has organized its annual conference as a part of the Nuclear Energy for people cycle under the heading *Safety of Nuclear Facilities and Environment*. The conference was held on November 13th -14th, 2008 in Sofia with 112 Bulgarian and foreign scientists, experts and specialists participating. These are some of the main subjects that were discussed: preparation of work force for the nuclear area, safety culture, radiation and environment, alternative energy resources and nuclear power engineering. Twenty three reports were presented. A round table was conducted on the subject: *Reviving of the young generation interest in nuclear science and nuclear industry*.



KOZLODUY NPP REVIEW

CONTACT US

We look forward to hearing your views. Please feel free to contact us.

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