

## Internal Information

### **CEZ has today delivered „Information on operating events at Temelin Nuclear Power Plant in the years 2002-2007“**

CEZ Power Company has today presented to the Prime Minister of the Czech Republic the official „Information on operating events at Temelin Nuclear Power Plant“. This Information was prepared following the requirement which resulted from discussion of the Minister of Industry and Trade Martin Riman, Minister of Environment Martin Bursik, Chairwoman of the State Office for Nuclear Safety Dana Drabova and representatives of CEZ taking place on 17 March, 2007.

Since the initiation of trial operation in 2002, there has been no operating event which might be rated as an incident or accident by the international INES scale at Temelin. The Information describes 166 operating events classified as 0 – deviation and 1 – anomaly.

The number of events within its five-year operation, that is in the years 2002-2007, is comparable to the statistics of Dukovany Nuclear Power Plant in the years 1993-1998, which was a period more than 5 years after the last Dukovany Unit had been put into operation. Temelin Nuclear Power Plant started its trial operation on June 10, 2002 (Unit 1) and on April 18, 2003 (Unit 2). The last, fourth unit of Dukovany plant, was put into trial operation in 1987. In 2003-2006, when both units were under trial operation, Temelin reached from 16 to 22 INES 0 and 1 events per each unit. Dukovany plant recorded roughly 23 to 28 INES 0 and 1 events per each unit in the period from 1993 to 1998.

At present, after 20-year operating experience, Dukovany ranks among the world's top nuclear installations regarding operational safety. "Statistics of operating events at Temelin is comparable to the starting stage of the operation in Dukovany. Our goal is to get Temelin to the present level of Dukovany and operate both Czech nuclear power plants at the same level of operational safety and reliability," said Vice-Chairman of the Board of Directors and Chief Production Officer of CEZ Jiri Borovec, and he added: „Since 2004, Temelin has managed to maintain the trend of a decreasing number of events classified by the INES scale, and that is a sign of gradual stabilization of the units operation“.

152 out of total 166 events were rated as INES 0, which is a deviation where operational limits and conditions are not exceeded. Such deviations include, for example, a planned reactor trip, spurious initiation of safety systems without significant implications or minor spreads of contamination within controlled areas without implications for safety culture. In the stated period, 14 INES 1 events occurred, which was anomaly beyond the authorised regime. Since Temelin was put into operation, there has been no event which would be classified as INES 2 or above, i.e. an incident with significant failure in safety provisions.

The stated INES 0 and 1 events can be divided into 6 groups. Most cases (69) were related to events which changed the condition of some of multiple barriers and protection levels in the concept of defence in depth remaining. The causes included, for example, faulty manipulation or incorrect assessment of equipment's condition. Several cases included malfunction on equipment in the plant technological systems, The second most frequent case, with 56 events, was the working place contamination in controlled areas without impact on environment.

The "Information on operating events at Temelin NPP in the years 2002-2007" contains a part dedicated to comparison of Temelin plant to power plants in France in this area. The evaluation covered results of 58 French nuclear units in the period from 2000 until 2006. France recorded roughly 1.1 events per each unit and year at INES 1 level. Temelin's value in the period under consideration was 1.4 events. Regarding the INES 0 level, French power plants had 7 events per each unit and year, while Temelin reached 15 events in this category.

"When comparing operation of Temelin with French units, it is necessary to take into account the fact that most French nuclear power plants had already been operating for long time in the period between 2000 and 2006 having over two to three decades of operational experience as they had started their operation in the 80's of last century. If compared to Dukovany, which has the same length of operation, the Czech power company achieved even better results than the French, when it had no INES 1 event between 2004 and 2006, and last year its four units reached only 14 INES 0 events. The goal of Temelin is to reach similar results as Dukovany, which can be achieved only through patient work and other years of operational experience," says Vladimir Hlavinka, Director of Temelin NPP.

In order to stabilize its operation, Temelin has started the programme „SAFELY 15 TERA“, whose goal is to reach expected safe and reliable yearly electricity production at the level of 15 TWh in medium term. The programme is based on three basic areas. The first one is technical stabilization. "It includes, for example, solution of fuel cycle, but also change of high-pressure turbine rotors, which is under realization this year. Further, we will focus on enhancing outage effectivity and programme of equipment renewal," adds Vladimir Hlavinka. The second area to be improved is the plant's organizational and personnel stabilization. The third part of the programme „Safely 15 TERA“ refers to the improvement of safety culture. "Step by step we must put in practice the experience from Dukovany's 20-year's operation and promote approved methods of the world nuclear community. Our goals are clear, we know how to reach them in order to enable Temelin to move from the average among the nuclear top," wishes Vladimir Hlavinka.

*Definition of INES 0 and 1 events significance according to the User's Manual of the International Atomic Energy Agency in Vienna:*

*INES 0 – deviations where operational limits and conditions are not exceeded and which are properly managed in accordance with adequate procedures. Examples include: a single random failure in a redundant system discovered during periodic inspections or tests, a planned reactor trip proceeding normally, spurious initiation of protection systems without significant consequences, leakages within the operational limits, minor spreads of contamination within controlled areas without wider implications for safety culture.*

*INES 1 - anomaly beyond the authorized regime but with significant defence in depth remaining. This may be due to equipment failure, human error or procedural inadequacies and may occur in any area of nuclear power plant's operation. Examples include: breaches of technical specifications or transport regulations, incidents without direct safety consequences that reveal inadequacies in the organisational system or safety culture, minor defects in pipework beyond the expectations of the surveillance programme.*