NUCLEAR POWER PLANTS WELCOMED ALMOST 3,000 VISITORS

On Saturdays 7 and 21 June, both Mochovce and Bohunice nuclear power plants were visited not only by employees and their families, but also people from the surrounding regions.

Both children and adults spent a day full of entertainment, culture, interesting events and facts related to the nuclear world. The programme in Mochovce started simultaneously directly in front of the turbine hall and power plant, as well as inside the nuclear power plant premises. In Bohunice, the Open Plant event was “moved” to the park in Jaslovské Bohunice; however, those who registered in advance could also enter the unknown world of nuclear. Cooling towers, chemical water treatment, and simulators are not a “big unknown” any more. This event was beneficial for all visitors – hitherto unknown NPP areas, attractions, competitions, creative workshops of regional traditional crafts with cultural traditions supported by various performances – folklore group Zuzkáčik from Tlmače, ballroom dance exhibition by the Levice dance school Junilev, and performance by children visiting the free-time centre Dúha (Rainbow) Hlohovec. Of course, the pop stars Mária Čírová and Monika Bagárová, and charming hostess Vera Wisterová, received the most attention. The Open Plant also had a philanthropic dimension – top company managers handed over symbolic cheques to representatives of the Special School in Levice, Constantin the Philosopher University in Nitra, the Foster Home Pečenady, and the free-time centre in Hlohovec, as Slovenské elektrárne’s contribution to their projects. Informal discussions between visitors and local municipalities, state administration and the Civil Information Committee were also of high interest. As every year, the Open Plant event was a good family trip, not only in the NPPs areas. The thermal and hydro power plants also opened their doors to visitors.

Z. Andrlová
EMANI INSPECTION WITH EXCELLENT RESULTS

Improvement of nuclear, operational and fire safety of power plants is the top priority

The insurance pool EMANI performed an inspection of Mochovce NPP on 17 and 18 June 2014. Mutual insurance company provides insurance coverage of potential risks in nuclear power plants and nuclear industry companies.

The inspection goal is to verify the operability and functionality of nuclear important systems and equipment.

The inspection was performed by inspectors from France and Belgium, two inspectors from the insurance company MARSH Europe Slovakia, and a representative of Enel Risk management. The inspection is organized at regular intervals by the SE Risk management department, and its technical aspects are provided for by the Nuclear Engineering Department. In the past, the inspection had focused solely on fire safety; however, the situation gradually changed after the Fukushima events. This year the inspection focused mainly on operational safety. The inspectors had only limited time to cover the demanding schedule. Therefore, the power plant paid high attention to the provision of qualified experts for the discussion of specific topics and for walkthroughs of primary and secondary technology.

EMANI experts visited the controlled zone and selected premises of the conventional island, such as the diesel generator station and power outlet transformers. In the final meeting with the EMO Plant Director, the inspectors stated that the provided information had fully covered the expected scope. They appreciated the implemented actions, and expressed satisfaction with the technology walkthrough. They didn’t identify any new serious findings requiring the immediate attention of the power plant.

The insurance experts visit many similar nuclear power plants in one year, so can compare nuclear, operational and fire safety improvements among them. Improvements in these areas must be our top priority. It is a long-term and never ending process. The positive statement represents a challenge for us to maintain the reached levels and continue improving.

Imrich Krajmer

The Safety Day

Health and safety of employees and contractors are our top priority

The Mochovce 3&4 event took place in the Information and Training Centre Mochovce on 26 June. “Dialogue and cooperation can help us reach the best results in this area,” said Mrs. Roberta Bonomi, Enel’s OH&S Manager, in a video conference, as she couldn’t participate personally in the event.

Mr. Róber Bulla, Chief Inspector of the Labour Inspectorate Nitra, focused on the main safety priorities and intentions of the MO34 project, and talked about inspection activities. “OH&S results in the completion project are excellent,” he said, and thanked the owner for the high quality performance of safety coordination activities. He also reminded that MO34 safety personnel mustn’t do the job instead of contractors’ managers and safety technicians.

“Trends are stable without improvement signs; therefore, it is necessary to make more effort to improve the situation. This will require the active cooperation of the contractors, because we have many workers on the site. We cannot be happy with the trend. Besides the One Safety programme, we also use the programme for OH&S deficiency analysis.”

Improvement of the observance of rules and regulations requires the improvement of training qualities, verification of work process qualities, and their application at individual management levels. Behaviour improvement includes a change from the “must” attitude to the “I want to do it safely” attitude. We must start with ourselves and become models. And we must motivate people to behave safely.

Mr. Aquilanti: “We want to become stricter in the assessment of unsafe behaviour, to post safety billboards on the site reminding workers of safety importance. It also includes the improvement of people’s awareness regarding safe behaviour, better communication, and feedback from contractors and suppliers to change activities on site to proactive.”

New initiatives of the One Safety project in the Enel Group were presented by Mrs. Victoria Vernarece, OH&S, Planning and Integration Manager. She introduced the history of the One Safety project and its transfer into a process. “The important thing is that countries or plants will be able to adjust it to their own requirements and conditions.” She introduced the activities of a group of specialists from various parts of Enel. Their task is to contribute to maximum process improvement. Its results also include enhanced motivation of observers, improvement of their quality, and motiva-
Slovenské elektrárne hosted a benchmarking visit from Armenian nuclear power plant Metsamor on 17 – 20 June. The Moscow centre of the World Association of Nuclear Operators recommended our company to the Armenians as the best candidate for sharing experiences in five areas: independent nuclear safety assessment, occupational health and safety, equipment reliability and technical inspections, integrated management system, and nuclear safety + continuous improvement processes of nuclear power plant performance.

Mr. Antonio Dentini, Enel Engineering and Research Safety Manager, emphasized the leadership importance in safety and its connection with quality. “The safety leader is a person considering and influencing safety with a proactive attitude.” Safety activities on contractors’ behalf were presented by Mr. Pierre Beligne, Project Manager of Inžinierske stavby Košice. “We prepared quality, OH&S and environmental principles, and started with the communication approach.” Mr. Marián Očenáš, MO34 Nuclear Island Safety Manager informed of the competition “Contractor of the Year”: “We want to motivate contractors towards a zero accident rate, which also helps to build trust in the company. We defined 8 measurable criteria to enable comparison of individual contractors.” The Contractor of the Year will be announced during the Safety Week. Mr. G. Aguilanti closed the event: “Health is something that doesn't belong to work, but to privacy, even though the boundaries between them are starting to diminish. But the more we work on it, the more safely people will behave – and they will leave for home healthy.”

One day earlier he had met the best observers, and said: “I can see an improvement in people’s behaviour, namely at contractors, but I expect more. Safety must become an everyday part of our lives.” He appreciated their past and current ideas and comments, and rewarded them with certificates. It was an event accompanying the Safety Week, including the programme of special observer’s training in the improvement of communication skills in giving feedback. The observers also received vouchers for observed workers with model and safe behaviour as part of positive motivation. The site hosted an event called Safety Means Cooperation, where SE and Enel safety supervisors together with contractors´ safety technicians demonstrated the performance of pre-job briefs. Examples of preventive measures against tripping and slipping hazards, working at height and on scaffolding, as well as blood and BMI measurements were done in the nuclear and conventional islands. The demonstration of fire extinguishing for fire guards and the public was also of great interest.

Števo Švolík
15 years since Mochovce NPP unit 2 commissioning
8 July – 13 July 1999:
Extended hydro pressure test stage 2

12 – 18 August 1999: Integral containment tightness test

Contractors’ day in Mochovce
Dialogue for improvement of cooperation quality and safety

It is an excellent opportunity to meet contractors, communicate directly with them, and receive feedback regarding cooperation with our company and the improvement of our own activities. This is how Mr. Luciano Pistillo, Procurement Manager of Slovenské elektrárne perceives the regular event “Contractor’s day of Slovenské elektrárne” that took place on 5 June in ITC Mochovce. Mr. Luca D’Agnese, the new Slovenské elektrárne CEO, introduced our company, its activities on the market, adoption of strategic decisions, and discussed cooperation with suppliers/contractors in shared activities. In his opinion, the meeting is a form of dialogue with contractors to be continued at a higher level; its goal is to confirm and emphasize our values and direction in a changing world. He emphasized safety as the top priority of SE together with reliability. “Neither us, nor our contractors can prevent change. We have to cooperate efficiently in the management of various projects. It’s an opportunity to learn from each other,” he added.

Continuous dialogue with contractors
Mrs. Beáta Hlavčákova, Manager of the Business Leaders Forum, also participated in this meeting. She stressed that a responsible company means a company that honours values and transparency, protects the environment, and tries to mitigate negative impacts. “Therefore, it is necessary to continue dialogue with contractors at all times,” she said.

Contractors’ assessment and qualification process
Slovenské elektrárne launched the contractors’ assessment programme two years ago. The goal is to find the best contractors for the company. “The contractors’ assessment is a comprehensive process and includes, e.g. quality, safety, reliability, following schedule and many other factors. Safety is the most important criterion, and only a reliable and safe partner can be selected,” emphasized Mr. L. Pistillo.

Completion of Mochovce NPP units 3&4
The most important private investment in Slovakia was presented by Mr. Giancarlo Aquilanti, MO34 Project Director. Up to 60% of suppliers come from Slovakia (up to 75% including Czech suppliers). Construction of the nuclear power plant created 10,000 direct and indirect jobs, and every euro spent for Mochovce construction is already earning EUR 2.36. The project employs both large and small companies. He said: “We use state-of-the-art technologies in our project. We reinforce relationships with the National Labour Inspectorate, and we want to have people monitoring safety on site.”

Understanding needs
According to Mr. Karl Fulbrook, Slovenské elektrárne HSE Manager, cooperation with contractors can improve namely by understanding their needs. However, there are still reserves in reporting work accidents. “We need real partners,” he stressed.

Rewarding the best
Slovenské elektrárne rewarded the 12 best contractors in the following categories: goods: Cement plant Lietavská Lúčka – Calmit, Activa and Messer Tatragas; works: Brush SEM, VUJE and Xervon, organizational unit Slovakia; services: EBA, Lease-Plan Slovakia and PosAm; cooperation with MO34 plant: Chemcomex Prague, PPA Control and Škoda JS. Jumper of the year: Armatury Group. 

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WE FINISHED THE PLANNED OUTAGE OF BOHUNICE V2 UNIT 3

Repheasing of TG1 to the grid on 5 July completed the first short (type) outage of EBO V2 Unit 3, which had lasted since 14 June. It was the third general overhaul (GO) of units in Slovak nuclear power plants this year, and the 30th GO of this particular unit with partial fuel removal from the reactor (approx. one fifth).

The main outage activities included the preventive maintenance of emergency power supply system 1 equipment – electric and I&C part, general overhaul of the reactor coolant pump (RCP), and inspection of the thrust flange and impeller, and replacement of impellers on two reactor coolant pumps and SG GO.

Activities with a major impact on the outage duration included reactor dismantling, refuelling and reactor reassembly.

“After unit heating, we performed the pressure test of the primary circuit and steam generators,” said Mr. Ivan Krchnár, Unit Outage Manager.

Outage preparation started with a 20-month advance, which is in line with the new outage management process introduced at nuclear power plants in 2010.

Outages and repairs form a standard part of the life cycle of each power plant, and is a long-term planned process.

Š. Švolík

There were 72 reactors under construction in 2013, which is the highest number since 1989. Nuclear development is concentrated in Asia, mainly China, states the annual report of the International Atomic Energy Agency. According to IAEA, the nuclear industry has undergone significant safety improvements in the last three years.

Work progress in Mochovce NPP Units 3&4 completion

NUCLEAR ISLAND
Civil and reconstruction works:
Unit 3 and common systems
• Installation of anchoring plates in selected rooms, installation of hermetic piping / cable penetrations, dismantling and refurbishment of HVAC hermetic penetrations, installation of pipelines and equipment (valves, electric and I&C system) in the steam generator box, in the RCP electric drives attendance room, in the emergency core cooling system rooms, HVAC installation in the reactor hall and ventilation stack, seismic reinforcement of systems

Unit 4
• Installation of postament stiffeners for concreting and installation of embedded components, HVAC installation in the reactor hall, installation of components for shaft No. 1, installation of lower biological shield, limiters and live steam and feedwater pipelines in the steam generator box, continuing activities in the bubble condenser room at all levels, installation of supports and cable trays in the switchboards room

CONVENTIONAL ISLAND
Unit 3&4 and common systems
• Installation of excitation and I&C systems on TG 31/32, installation of high-pressure hydraulic control system on TG32, final installation and setting of the turning device, preparation for the under-pressure area hydrostatic leak test, preparation of TG cooling water circuit leak test, installation of machinery, electric and I&C of condensate polishing system, modification and completion of the main control room, HVAC system in the electrical buildings (cross-side and lengthwise side), installation of electric fire signalization and fire suppression system in the turbine hall, in the transformer area and in the electrical building, installation of anchoring plates, machinery and pipelines in the auxiliary building, cable pulling in the electrical buildings, installation of cable trays in the diesel generator station building and hydraulic test of auxiliary feedwater tanks.

Data as at 1 May 2014
**Costs summary**
- Committed costs: approx. 94.8% of authorized budget
- Budget EUR 3,775 ml. (excluding strategic spare parts)

**Safety Highlights**
- Total worked hours: 29,677 060
- Site work accidents:
  - Frequency index = 0.61 [Endl & Rer. in 2013: 0.90]
  - Severity index = 0.090 [Endl & Rer. in 2013: 0.021] E.L. = (nr. of accidents with sick leave x 1,000,000) / total worked hours S.L. = (nr. of days lost x 1,000) / total worked hours

**Nuclear Island**
Unit 3 & Common
**Construction and refurbishment works in progress:**
- Anchoring plates installation in selected priority rooms (205 rooms partially ready for technological erection start)
- Hermetic pipe/cables penetrations installation in various rooms
- Dismantling and refurbishment of HVAC hermetic penetrations in various rooms

**Generator box**
- Connecting System piping erection
- Pressurized System piping erection
- Main Coolant Pumps piping and Equipment erection
- Valves and level tanks erection on Steam Generator
- Main Steam and Feed Water supports finalization
- Lube Oil equipment and piping installation
- Installation of Heat and Ventilation Air Conditioning System (HVAC) ducts and piping
- Emergency Core Cooling System piping erection - Completed in Room A302
- Spraying system piping installation
- Electrical and I&C cable trays support installation

**Main coolant pumps electromotor operator’s room**
- Main coolant and intermediate cooling system piping erection
- Installation of HVAC ducts
- Reactor hall – cable channel
- Cable way support structures installation - Completed in Room A302
- Heat and Ventilation System ducts and equipment assembly

**Operator’s room**
- Assembly of ventilation system in leak resistance area

**Emergency core cooling system compartment**
- Installation of small bore piping
- Modification of steel platforms Completed
- Cable trays and supports installation
- Switchboard installation

**Reactor shaft to the level of +22.37 m**
- Installation lower protection shield

**Transport container shaft**
- Anti-seismic supports for transport container and mobile shielding
- Shaft for storage/shaft nr.2
- Frame installation reactor internal storage shaft

**Electric switchboard room**
- Cable trays installation
- LW electrical building
- Assembly HVAC heating and cooling water piping and Equipment
- HVAC duct installation

**Bubble condenser tray room**
- Seismic reinforcement for beams and platforms at various levels
- Cross side electrical building
- Instrumentation and control (I&C) cabinets installation and power cable pulling

**Venting stack room nr. 1,2,3,4,5**
- Installation of radiation monitoring system (RMS) equipment and instrumentation
- RMS performance tests continue
- HVAC installation
- Cable trays installation

**Measuring apparatus rooms**
- Supports and cable trays installation
- Instruments rack installation

**Pipe bridge**
- Installation of pipe bridge

**Valve compartment**
- Primary circuit and intermediate cooling system piping erection
- HVAC system engine room
- Equipment assembly and installation
- HVAC equipment electromotor room
- Equipment assembly and installation

**HVAC shaft**
- Equipment assembly
- Another solution emergency storage tanks
- Seismic reinforcement for Tanks

**Boron concentrator tank and pump valve chamber**
- Boron Recovery system piping and components erection

**Pressure Accumulator compartment**
- Modification/installation of platforms
- Hydroaccumulators shock absorber installation

**Trap Room**
- HVAC Equipment assembly

**Fresh Fuel Storage**
- Platforms erection Completed
- Collector Compartment under Filters
- HV Equipment assembly
- Cable Trays installation

**Valves Control Rooms and valves Compartment**
- Primary System and Auxiliary Reactor System large bore piping erection
- Mechanical equipment installation

**Spare Room**
- HVAC Equipment assembly Completed in Room A231
- Station nr.1 Filter Room
- Radioactive gas treatment System large bore piping erection
- HVAC System erection
- Hot Medium Drain Pump Room
- Spent fuel pool cooling System large bore piping erection
- Boron Concentrate Tank and Pump Valve Chamber
- Boron recovery System piping and components erection

**Unit 3 Reactor hall**
- Postament rebar assembly for con creting and embedded elements installation
- Erection of gate frames
- Erection of transport channel frame
- HVAC piping erection

**Cable channel**
- Carbon steel liner installation and concrete potting

**Transport container shaft**
- Shaft 1 component installation

**Reactor shaft to the level of +22.37 m**
- Installation lower protection shield

**Steam generator compartment**
- Erection of lower biological protection
- Erection of Main Steam and Feed Water limiters and piping
- Bubbel condenser tray room
- Installation of works on all levels

**Electric switchboard room**
- Cable trays and supports installation

**Service lengthwise corridor**
- Hoist erection

**Conventional Island**
Unit 3 & Common
- Installation of I&C equipment and excitation system on STG 31/32
- Erection of HP hydraulic control system TG 32
- TG 31/32 Final assembly and turning gear installation
- TG 31/32 Ready for Hydrostatic Leakage Test of vacuum space
- TG 32 Ready for the leak test of Cooling Water circuit
- Condensate polishing system erection mechanical, electrical and I&C
- Erection of main cable ways for power and I&C in Turbines Hall
- Main Control Room modification works and finishing
- HVAC system in electrical building (cross side and lengthwise)
- Installation of fire detection system in turbine hall, transformers area and electrical building
- Erection of fire-fighting system in turbine hall, transformers area, electrical building
- Individual tests on Chemical Water Treatment Plant
- Individual tests on Low Voltage/Medium Voltage electrical building
- Individual tests on LP Air Compression Station and Cooling Station
- Hydraulic test for Non-essential service water turbine hall
- Installation of air receivers in high pressure compressors station Completed
- Installation of anchoring plates in critical rooms Auxiliary Building
- Mechanical equipment and piping erection activities in Auxiliary Building
- Cable pulling in lengthwise and cross side electrical building
- Diesel generator station on-going cable trays erection
- Emergency feed water tanks hydraulic test
- Motor Control Center and Subswitch erection in turbine hall, essential service water pumping station and emergency feed water building
- Stand-by Water Supply Building start Civil Works
- Electrical cables pulling in external area

**Unit 4**
Construction and refurbishment works in progress:
- Erection of feed water, demi water and main steam pipe TG 41/42
- TG 41/42 final assembly and Turning Gear installation
- TG 41/42 Generator auxiliaries systems erection
- TG 41/42 Ready for hydrostatic leakage test of vacuum space
- TG 41/42 Ready for hydrostatic leakage test of Cooling Water circuit
- TG 41/42 steam piping and drainage erection
- Basement for transformers Bus Duct Completed
- Erection of feed water tank
- Erection of low pressure air system
- Electrical building partition wall installation
- Installation of cable trays in lengthwise and cross side Electrical Building
- Instrumentation and control installation in TG 41/42
- Oil, water and gas system erection generator TG 42
- Erection of circulating water piping, turbine TG 42
- Air Sewer installation generator TG42
- Piping erection of non-essential water system, condensate and demineralized water system
- Installation of cable trays in lengthwise and crosswise electrical building
- Condenser vacuum system piping erection
- Condensate polishing system erection mechanical, electrical and I&C