Anticipated Events in 2014

Best Results of Nuclear Operations

MO34 Project Awarded

Increasing Interest of Visitors in NPPs

DONATE 2% FOR MOCHOVCE CHURCH

MO34 Progress of Works

Slovenské elektrárne, an Enel Group Company, reaches another milestone in construction of Mochovce Power Plant Units 3&4 by completing site acceptance test on the full-scope simulator.

The simulator is an exact copy of the main and emergency control room, and is used for the preparation and training of operators and the verification of procedures. The positive results of the simulator takeover tests proved compliance between the hardware and software and the design documentation. They also prove the correct design of the main and emergency control room. The full-scope simulator is capable of reproducing the power plant’s processes and behaviour during normal operation and under abnormal conditions. Thus, it is the most efficient tool for the preparation of unit operators. The basic preparation of operators will start after the issue of a license by the Nuclear Regulatory Authority of the SR.

Another MO34 Milestone Reached

New Demanding Tasks in 2014 Following Previous Excellent Results

Operation of Slovenské elektrárne nuclear power plants

We entered 2014 with good results from the previous year that, again, brought the best results in the operational history of the nuclear units. Average availability (generation time – i.e. except for outages) of all four units in Bohunice and Mochovce – 93.95 per cent - is a result that most operators around the world can envy. And this result is even more valuable, because it didn’t happen by chance; we know how we reached it and what effort it took to optimize the outages, ensure high plant reliability and minimize human errors.

It is OUR common success.

And it is even more precious because it was accompanied by a visible improvement of nuclear safety results.

Jaroslav Holubec
We didn’t have any reactor scram or violation of limits and conditions in the previous year; it was free of any INES event classified higher than INES 0. The share of human errors on events with safety impacts also decreased in 2013. However, we can’t stop our effort and high demand level, we cannot be satisfied by the fact that we had three registered work accidents of NPP operation personnel in the last year. Not even the situation on the energy market allows us to relax in our effort to reach the maximal safe and efficient operation of nuclear units.

I would like to take the opportunity to thank all my co-workers for the reached results; I am sure that the coming year 2014 will be successful, too. I would also like to thank our supporters and fans in the regions of Jaslovské Bohunice and Mochovce, and I am looking forward to our cooperation this year.

The highly qualified personnel at Mochovce allows us to define these impressive goals.

Jordan Mandalov,
Mochovce NPP Director

Year of Unit 3 completion
Mochovce power plant units 3&4: We reached important milestones in the Mochovce NPP units 3&4 completion project, such as the completion of the turbine machinery systems, first energization of the control system that is highly important for power plant operation and safety, and the completion of takeover tests of the full-scale simulator on the site (exact copy of the main control room). We started takeover tests of electric systems (all in unit 3).

We also achieved an important milestone in terms of implementation of safety improvements resulting from the stress tests performed in the European Union, namely the approval of the Basic Design Changes by the Nuclear Regulatory Authority of the SR. MO34 is the first project of VVER type comprising all the improvements required after the Fukushima events.

We worked 7.4 million man-hours on the site during the last year, with a peak of 4,000 people, while reaching a high safety level. Last November, we reached 532 working days without a registered work accident.

This year, we will complete the installation of systems and start their start-up for gradual commissioning. We will also finish the preparation of future power plant operators on simulators by this May.

I wish you a wonderful new year, and a lot of good health, success and happiness. I would like to thank all the residents of the Mochovce region for their constant support of the MO34 project that is the key of our success, and invite them to visit our information centre to obtain the latest information about our successful project.

Giancarlo Aquilanti,
MO34 Project Director

Safe and reliable operation
Mochovce nuclear power plant: To make 2014 as successful as the previous year or even better, we must continue our improvement. Our main goal – and not only for this year – is to ensure the safe and reliable operation of nuclear units. Therefore, we will continue our already started projects aimed at the improvement of operational efficiency. We want to improve work management, continue shortening general overhauls, and we will introduce processes that increase equipment reliability and cost control.

We want to continue radical changes in the personnel preparation started in the previous period. We are performing on-the-job preparation of professionals using new approaches. We prepare “tailored” training programmes for them in compliance with best world practise, and we will continue practical training in the new training centres established directly in the power plant. We will also prefer and enforce a new training approach for our contractors. The optimization of job positions will result in the transfer of competences and professional skills to the work teams.

The highly qualified personnel at Mochovce allows us to define these impressive goals.

Jordan Mandalov,
Mochovce NPP Director

Milan Molnár
Improvement of work organization and efficiency
Bohunice V2 nuclear power plant: Our work is reflected in our results. I am very glad for the continuous improvement and gradual quality increase at all levels. I would like to thank all the people in our power plant for this success. However, we also must not forget that reaching the top standards requires the long-term high quality work of all those involved. Last year the results were excellent from the historical point. On the other hand, we still have some reserves to be improved. They showed up during events in the power plants, and were disclosed by the work organization monitoring process project and by the WANO mission.

This year, we would like to improve already started projects and shift to work performance directly at the workplaces. I believe in the higher engagement of first-line management (foremen and team leaders) in work management, safety approach and the training of all employees. Improved work organization and efficiency during the planning phase will help us to improve the plant conditions and reliability. I am convinced that the safe outage course and its good results depend namely on thorough and detail preparation.

Care for equipment includes a variety of activities and principles that were implemented in the past rather by engineering feeling than some systematic approach. We need some more years for its full implementation. Our engineers have done a very good job in the equipment improvement project, and we will continue its implementation to the equipment care process also in 2014. Improvement of the working environment will also undergo significant changes. We plan the construction of new maintenance workshops, the complete reconstruction of technical offices, the construction of a waste management system building, and the implementation of other smaller projects this year.

This year full of activities will be highly demanding. However, these activities will help us move forward and, if done well, can help us to improve and simplify our work. I am convinced that we have the capacities and abilities to reach our goals.

Milan Molnár,
Bohunice V2 NPP Director

02
Anticipated Events in 2014

Quarter I
- Independent safety culture assessment
- Regular meetings of the Public Information Committee (OIK) Mochovce and OIK Bohunice with EMO, MO34 and EBO V2 management
- Outage of EMO unit 1
- Optimization of unit general outages (GO)
- Technical supporting mission (TSM) of the (WANO): area management by managers and leaders - EBO V2

Quarter II
- Outage of EMO 1 unit
- Supervisory audit of SE Integrated management system
- MO34 Safety Day
- TSM WANO: use of digital control system – MO34
- Optimization of units GO
- Outage of EBO V2 unit 4
- Plant drill EMO
- Open Plant: EMO, MO34, EBO V2
- Training of the mayors and crisis committees of district authorities
- Outage of EBO V2 unit 3

Quarter III
- Opening of new EMO information and training centre
- Independent safety culture assessment
- Regular meetings of OIK Mochovce and OIK Bohunice with EMO, MO34 and EBO V2 management
- Plant drill EBO V2
- Outage of EMO unit 2
- Optimization of unit GO
- 30 years since EBO unit 3 commissioning

Quarter IV
- Outage of EMO unit 2
- 7th International Health and Safety Week
- TSM WANO: monitoring of technological systems and early decision at solution of equipment failures and material degradation – EBO V2
- Preparation and distribution of calendar for 2015 – 2016 for residents living in NPP proximity
- 15 years since EMO unit 2 commissioning

Best Results of Nuclear Operations

2013 from the operational perspective

EMO: We reached the historically highest electricity production – 8,079GWh. This highly positive result was reached namely thanks to shortened planned outages of units 3 and 4 by 1.2 days in total – however, not to the detriment of quality or work performance, and also the reliable and stable operation of unit 4 reached 0.07 % share of unplanned / forced losses (power decrease). Unit availability factor reached 94.54 per cent. Planned heat delivery to the hot water conduit was not met due to the warmer winter.

However, the results could have been better. We faced two failures of the unit 3 turbo generator. They didn’t last long, as we could detect and remove their cause. We shut the unit down twice to eliminate 5G feedwater system leaks.

We managed to minimize both outages.

In terms of safety, we didn’t face any violation of limits and conditions, unit scram or INES 1 or higher event. We didn’t exceed the set number of events reported to NRA.

The results of 2013 confirm our improvement of the reached results of the previous five years.

Anton Venhart, Operation Manager

We are proud of our results - reached thanks to all workers

EMO: We reached the historically highest electricity production – 7,640GWh, which represents record electricity supplies to the national electric system.

The results were reached thanks to low unit failure rates (loss factors: 0.0% for unit 1 and 0.1% for unit 2) and also very short refuelling outages (23.35 days for unit 1 and 20.0 days for unit 2). Both factors contributed to unit availability factors of 93.33% and 94.23%, respectively.

We produced the lowest volumes of liquid radioactive waste in Slovak nuclear history, thus significantly contributing to lowering EMO’s environmental impacts. The volume of gaseous releases reached only a negligible portion of allowed limits, which is also a significant success.

We haven’t violated any limits and conditions, there was no reactor scram or INES 1 or higher event. Also the number of events reported to NRA reached the historically lowest number in the 15-year operation of EMO NPP.

The results were also reached by the application of human error prevention tools used by the power plant employees in all spheres of activities.

We are proud of the 2013 results, which couldn’t have been reached without the involvement of all EMO workers, and I would like to thank them all.

Róbert Behúl, Operation Manager

Bohunice V2 NPP and Mochovce NPP delivered record electricity volumes to the Slovak electricity system.
MO34 Project Awarded – Thanks to Dedicated People

Marek Rolinc, Health, Safety and Environment Manager of MO34, representative of the MO34 completion project received the award for zero accident rate during the official opening ceremony of the International Health and Safety Week in Rome (Enel headquarters).

We were interested in what’s behind that brief information, what preceded the effort for the minimization of the work accident rate that costs each company a lot of money, and also reflects in the incorrect behaviour of workers with subsequent impacts on their family lives and situation.

How do you, and the whole plant, succeed in this area; since when have you been dealing with it?

We had a relatively successful period in the project, as we managed to work 532 days without a registered work accident. This result was reached thanks to excellent team work.

Unfortunately, just when we had received the information of being awarded by ENEL CEO, Fulvio Conti, we registered a work accident that disrupted our successful trend and reminded us that there is still a lot of work to be done requiring our full attention, and that we cannot “praise the day before the night”.

I have been working in the position of OH&S coordinator or manager on different sites since 2002. During that period, I supervised large construction projects with utmost significance for our economy, just like this one.

What did you bring (in terms of experience) from this opening event of the International Health and Safety Week?

The atmosphere was excellent and the whole event was at the top level and very well organized. And these are the moments when you feel sorry that only you – from the whole project – have the chance to enjoy this atmosphere, because I know that all my SE or Enel Engineering & Research colleagues would deserve it.

Did you meet any interesting persons, what did they bring and was it of any value for you?

The opening ceremony of the sixth International Health and Safety Week connected with the evaluation of results for the previous period was attended by the top representatives of our mother company, Enel. I also used the opportunity to meet colleagues from the company Enel Green Power, who joined me in a peer review of the Flamanville power plant, and Enel E&R people.

I also met Livio Vido, Director of Enel International Division, who frequently participates in events in EMO and MO34; the award was given by Alda Paola Baldi – Enel H&S Manager, and F. Conti, ENEL CEO. Paolo Andrea Colombo, Chairman of the ENEL Board of Directors, opened the International Health and Safety Week.

Besides our project MO34, also our colleagues from the Nováky power plant received an award, accepted by the Plant Director, Milan Bugár. This is also proof that safety at SE is really the top priority. Moreover, this event provided an excellent opportunity to share knowledge and experience, because – despite being centrally managed from the SE headquarters, there are always some minor deviations among individual plants, proving good practices in them.

Did the organizers bring something new?

I liked the campaigns focusing on the healthy lifestyle of employees, and those dedicated to standard activities, such as driving and office work.

You certainly also visited Enel E&R headquarters; did you find something special in the programme itself?

The organizers planned the ceremony for Monday evening after an excellent programme including lectures by Enel specialists, and a presentation by Italian soldiers saving lives in foreign missions by risking their own lives by the mine clearing of roads, agricultural land, etc. The programme was hosted by Gianluca Semprini from SKY Italy. We also viewed the presentations of our mother company’s ideas, and spent a very pleasant evening with our Enel colleagues in a well-known Italian restaurant tasting delicious fettuccine and great Italian wine.

Despite the negative end of the year with another registered work accident (in one case, the worker cut his forearm after a grinder seizure; in the other case, the worker hurt his wrist and hit his hand on the drilling machine bolt)...

They occurred in November and late December. Also EMO faced an “unusual” accident, when its worker slipped on an icy sidewalk during her business trip to Nitra. We certainly don’t want to relax in our effort to reach a zero accident rate during
the upcoming completion and commissioning period...

What resolutions did you make for this year?

Goals and resolutions are more-less the same. We want to prevent any work accidents at any rate, and create conditions for our colleagues and suppliers that enable safe and quality performance of their duties. Our contractors, and their approach to safety – both their workers and sub-suppliers – also have a significant contribution to this.

This year, we are going to focus on their activities and their approach to safety. We want to involve them in the safety management process as much as possible. Their activities must not be passive, but, on the contrary, maximally active, as this is the only way for the coming demanding period.

The award that you (and the plant) received is not your first.

... and neither the last, as somebody might expect.

But I don’t do this to get awards. I am not an award collector, even though they hang on my wall. My top interest is to put OH&S first, and to have people getting home safe and sound.

Of course, everybody is pleased to be rewarded with a certificate, a “thank you” letter, or a medal or certificate given directly by the minister.

For me, a job well done and the fact that “we all are safe and sound” is the best satisfaction.

However, this is always preceded by hard work and effort, and working with professionals that I often had the opportunity to work with. The company’s attitude and philosophy is also important. Safety measures – even those financially demanding – are more easily introduced in companies like SE and Enel, as managers and directors at all levels consider safety to be the top priority, and the money spent for this goal is taken as an investment in our health and future.

I would also like to use this opportunity to thank all my colleagues from SE and Enel E&R, and our contractors and suppliers for their support and assistance.

Marek Rolinc
Together with his colleague, Marián Otcenáš, took the 1st and the 2nd place in the Hazard observation / Safety Ideas in a competition aimed at the proposal or adoption of OH&S solutions beyond standards, and contributing to the improvement of OH&S status.

Earlier, he received the medal for self-sacrifice from the Minister of Interior when he served in the army for “extraordinary credits in the removal of flooding consequences”; another one comes from the County Directorate of the Police Corps of the SR Nitra, County Traffic Inspectorate (author’s remark – justification cited: “Let me express our high appreciation and thanks for your contribution to the safety and smooth road traffic for SE-Enel workers and co-workers, and to wish you a lot of enthusiasm in your valuable activities contributing to the improvement of road safety and the rescue of lives. Signed: LTC JUDr. Jozef Andráško, CTI Director).”

However, the most important award for Rolinc is the Safe Enterprise Certificate received for MO34 on 17 October 2012 from the Minister of Labour, Social Affairs and Family of the SR from the Ministry State Secretary in Bratislava, Mr. Branislav Ondruš, based on fulfilled criteria and the proposal of the competition management committee.

It says: “It is proof of the introduction of efficient OH&S, fire protection and environmental protection management system by the subject. This certificate binds the subject to continued improvement of working conditions, working relations and the environment in order to increase the OH&S level and work culture.”

Rising Interest of Visitors in NPPs

Almost nine thousand visitors to Mochovce NPP and more than three thousand visitors to Bohunice NPP reflect the rising interest of people from all over Slovakia in the completion of Mochovce units 3 and 4.

During the summer Open Plant events, another 1,600 people visited EMO / MO34 and 2,900 came to EBO V2. More than 16,500 people interested in nuclear energy visited both NPP localities. It is proof of the constant interest in this electricity production method.

Communication with the public
The information centre in EMO had 8,759 visitors, which is the highest visitor rate since SE privatization, and 3,284 people visited EBO. Three quarters of visitors were pupils and students. In EMO, 51% were from primary schools, 41% from secondary schools and 7% from universities. In EBO, the shares were 50% primary schools, 35% secondary schools and 15% universities.

Foreign visitors: 447 in Mochovce (5%), 459 in Bohunice (14%), which is almost twice the previous year.

Overall visitor rate in EMO/EBO increased by 2,222 people.

Visits to information centres and production areas of all our power plants is the best way to get information about power engineering. They are good supplementation of the information included in the study materials at all education levels. In 2013, Slovenské elektrárne plants were visited by approx. 21 thousand visitors; of that, 6,900 visited the hydro power plants (more than half of that Gabčíkovo), and Nováky and Vojany had 1,000 visitors each.

More than 11,000 people visited annual events for the public from around the power plants (Open Plant), with various accompanying programmes.

Donate 2% for Mochovce Church
The dominant feature of the former village was repaired by Slovenské elektrárne, but it is still necessary to complete its interior. You can donate any sum to the account: Neinvestičný fond Kostol Mochovce, account No. 0221014588/0900, company registration number: 36096288, financial donation; constant symbol: 0308; variable symbol: month of donation, and thus help to preserve this significant cultural monument. Or you can contribute from your income tax. Just add your data to the statement and send it to the tax office or to SE-EMO, P. O. Box 11, 935 93 Mochovce together with the excise bill.
Progress of Works as of January 1, 2014

Safety Highlights
- Total worked hours: approx. 25,182,003
- Site work accidents:
  - Frequency index = 0.48
    (Enel I&R ref. in 2011: 1.08)
  - Severity index = 0.02
    (Enel I&R ref. in 2011: 0.049)
  - F.I. = (n. of accidents with sick leave / total worked hours)
  - S.I. = (n. of days lost x 1,000) / total worked hours

Nuclear Island
Unit 3 & Common Areas

Achieved Milestones:
DCS Phase 2 Power Up

Construction and refurbishment works in progress:

Generator box
- Piping erection and installation
- LBA, LAB supports finalization
- QBR Equipment
- Installation of HVAC Ducts
- Spraying system piping installation
- Cable trays support installation
- Main Coolant Pumps electro-motor operator’s Room
- Piping erection
- Installation of HVAC Ducts
- Emergency Core Cooling System Compartment
  - Supports and Piping erection
  - Installation of small bore piping
  - Modification of steel platforms
  - Cable trays and supports 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 and supports installation
- LW Electrical Building
  - Assembly HVAC heating and cooling water piping
- Bubble Condenser Tray Room
  - Seismic reinforcement for beams and platforms Level +12.00/+9.00/+8.00
- Cross Side Electrical Building
  - I&C cabinets installation and power cable pulling
- Measuring Apparatus Room
  - Supports and Cable Trays installation

Unit 4 Reactor hall
- Postament no. 4: rebar assembly for concrete and embedded elements installation
- Erection of gate frames
- Cable Channe
  - Carbon steel liner installation and concrete pouring
- Transport Container Shaft
  - Shaft 1 component installation
  - Reactor shaft to the level of +22.37 m
  - Installation lower protection shield
- Steam generator compartment
  - Hot and cool consoles reinforcement and installation of GERBS

Primary circuit JEC ball supports positioning for cold legs
- Bubble condenser tray room
- continuation of works on all levels (works completed at level 6/5/4)
- Electric Switchboard Room
- Cable trays and supports installation

Conventional Island
Unit 3 & Common

Construction and refurbishment works in progress:
- Installation of I&C equipment and excitation system on STG 31/32
- Steam Turbines thermal insulation TG 32
- Erection of HP Hydraulic control system TG 32
- TG 31/32 Preparation for the Leak test of Cooling Water System
- Condensate Polishing System erection mechanical, electrical and I&C
- Erection of main cable ways for power and I&C in turbines hall
- HVAC system in Electrical Building Erection of Fire Fighting System in Turbine Hall, Transformers area, Electrical Building
- Individual tests on Chemical Water Treatment Plant
- Individual tests on LP Air Compression Station and Cooling Station
- Individual tests LV/MV Electrical Building
- Hydraulic test for NoESW Turbine Hall, Cold and Hot Water System, LP Air System
- Installation of Air Receivers in HP Compressors Station
- Installation of anchoring plates in critical rooms Auxiliary Building
- Mechanical equipment erection activities in Auxiliary Building
- Cable pulling in lengthwise and cross side Electrical Building
- Emergency Feed Water Tanks hydraulic test on going
- MCC and Subswitch erection in Turbine Hall, ESW Pumping Station and Emergency Feed Water Building

Unit 4 Construction and refurbishment works in progress:
- Erection of feed water, demi water and main steam pipe TG 41/42
- Erection of feed water tank
- Erection of LP Air system
- TG 41/42 Preparation for the Leak test of Cooling Water System
- Electrical Building partition wall installation
- I&C installation in TG 41/42
- Erection of Generator and auxiliary pipeline TG 41
- Oil, Water and Gas System erection Generator TG 42
- Erection of circulating water piping, turbine TG 42
- Air Sewer installation Generator TG 42
- Installation of cable trays in lengthwise and crosswise electrical building
- Condenser Vacuum System piping erection
- Condensate Polishing System erection mechanical, electrical and I&C

Photo Report

Erection of LP system in SG box
Installation of cable trays metal support structures
Erection of QBR system in main coolant pump room
Erection activities in SG box