Experience of psychological service of Rosenergoatom in ensuring the reliability of the human factor

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To ensure safe and efficient operation of nuclear power plants the laboratories of psycho-physiological support (LPPS) started being established at Russian NPPs since 1982 [1]. The methodological background for this was later summarized in Ref. [2].

Psychophysiological examination of candidates/employees (PFE)

The PFE purpose is a psychological selection of NPP's workers (2012) [2].

To assess the predictive effectiveness of the preliminary PFE results, the LPPS experts get a feedback from NPP management on the employees' performance (more than 80 percent).

The specialists of The SMC “PPSPPR” developed the following documents:

- List of positions of NPP’s employees subject to PFE survey to detect early signs of psychological maladjustment and other disorders that reduce professional personnel reliability affecting NPP operating safety.
- Guidelines for the PFE of NPP’s workers (2012)
- Order of psychophysiological examination of NPP’s employees (2013)

Psychological and physiological support of workers (PPS)

The purpose of PPS is to recover, maintain and improve professional performance to prevent wrong actions of the staff. Preventative and corrective measures are taken by PPS in this area.

In 2014, the LPPS experts conducted group PPS activities for 1929 people and individual activities for 2292 people.

The effectiveness of PPS events held by the LPPS specialists is evaluated using objective and subjective measures of functional status before and after completion of the PPS course, dynamics of which makes it possible to speak about actual effectiveness of the activities conducted for the NPP workers.

Socio-psychological aspects of safety culture

Socio-psychological aspects of safety culture are implemented in the NPPs activities taking into account the recommendations of the IAEA, WANO, Rosenergoatom [4, 5].

The LPPS specialists perform psychological analysis of employees’ incorrect actions causes when an LPPS specialist works in the commission on investigating the violations/deviations in an NPP operation.

Psycho-pedagogical support of the educational process

Within the framework of psycho-pedagogical support of the NPP employees training process the LPPS’s experts conduct group and individual classes on the psychological aspects of safety culture are implemented in the NPPs activities.

Examples of research topics:
- Evaluation of organizational culture at NPP
- Assessment of the socio-psychological climate in collectives
- Evaluation of the safety culture indicators at NPP
- Assessment of the impact of external and internal factors on the efficiency of NPP’s personnel production

The results of the corporate peer review by WANO, Rosenergoatom have shown that the involvement of LPPS specialists in the investigation of violations, staff selection and preventive management of stressful situations positively affects the nuclear power plants operation and is one of the strengths of Rosenergoatom.

This comprehensive work of LPPS increases the reliability of the human factor and NPPs safety.

References