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The Experience of Psychological Service of Rosenergoatom in Ensuring the Reliability of the Human Factor

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Synopsis

To ensure the safe and efficient operation of nuclear power plants, since 1982 the laboratories of psychophysiological support (LPPS) started being established at Russian NPPs [1]. The methodological background for this was later summarized in Ref. [2]. The LPPS' activity and professional development of LPPS specialists are currently supported by the scientific-methodological center "Psycho-Physiological Support of Professional Personnel Reliability" (PPSPPR) of Rosatom Central Institute for Continuing Education and Training (ROSATOM-CICE&T) [3].

The present paper gives the outlines of the main LPPS's tasks performed by above mentioned organizations at Russian NPPs:

- ☒ psychophysiological examination of candidates/employees (PFE);
- ☒ psychological and physiological support of workers (PPS);
- ☒ socio-psychological aspects of safety culture;
- ☒ psycho-pedagogical support of the educational process.

The PFE purpose is a psychological selection of NPP candidates/employees and control of psychophysiological properties and professionally important qualities (PIQ) to detect early signs of psychological maladjustment and other disorders that reduce professional personnel reliability affecting the NPP operating safety.

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

The 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 a psychological analysis of the causes of incorrect actions of employees when the LPPS specialist works in the commission on investigating the violations/deviations in the NPP operation. The LPPS specialists carry out social and psychological research of the socio-psychological climate of the NPP workforce; on shift staffing, manpower selection and deployment in the NPP divisions with regard to their business and psychological compatibility; on assessment of safety culture at NPPs; provide information and advice to the management and staff of the NPPs, participate in ongoing activities to improve the safety culture at the NPPs, and professional reliability of the personnel.

Within the framework of psycho-pedagogical support of the process of NPP employees training the LPPS's experts conduct group and individual classes on the psychological training of the NPP personnel, carry out psychological and pedagogical support of emergency drills and individual appraisal practice of the operational personnel at a full-scale simulator, develop psycho-pedagogical recommendations on an individual approach to operational personnel education during training to be authorized for the job.

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 operation of nuclear power plants and is one of the strengths of Rosenergoatom.

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

In the framework of implementation of scientific-methodological management of the LPPS activities SMC

«PPSPPR» performs the following tasks:

- ☒ to develop regulatory documents governing the activity of LPPS specialists;
- ☒ to develop guidelines and instructions for implementation of the main activities, training materials, including lesson plans, handouts, videos, etc.;
- ☒ to develop and maintain the Unified Knowledge Base on the LPPS activities;
- ☒ to conduct training courses for the LPPS specialists;
- ☒ to held scientific-practical conferences on sharing the best practices;
- ☒ to carry out research work in the field of improving the reliability of the human factor.

References

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- [4] Safety Culture in Nuclear Installations: Guidance for Use in the Enhancement of Safety Culture, No. IAEA-TECDOC-1329, IAEA, Vienna (2002).
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Country or International Agency

Russian Federation

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Primary author: CHERNETCKAIA, Elena (Rosatom central institute for continuing education and training)

Co-author: Ms BELYH, Tatiana (Rosatom central institute for continuing education and training)

Presenter: CHERNETCKAIA, Elena (Rosatom central institute for continuing education and training)

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