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Radiation Safety Management Regulation of Thai Research Reactor-1/Modification 1 for Reactor Health Physicist Implementation

Thailand Institute of Nuclear Technology (TINT) is the Thailand government organization that has been carrying out core missions about nuclear applications and radiation techniques. Thai Research Reactor-1/Modification 1 (TRR-1/M1) has been one of the main cores for the utilization of nuclear applications at TINT since 1962 in order to serve the radioisotope production, nuclear technology research and development, and nuclear reactor education and training. The TRR-1/M1 is the TRIGA-Mark III type having 8.5 wt.% and 20 wt.% uranium fuels and four neutron beamlines within an open reactor pool covered by high-density concrete shielding. Light water is used as the coolant, moderator, and reflector. The maximum operation power of TRR-1/M1 is 1.3 MW. Generally, during the TRR-1/M1 operation performed by the Reactor Center, health physicists from the Nuclear Safety Section have the responsibility to help regulate the nuclear safety management for TRR-1/M1 operators and others in the plant. The reactor safety management for the health physicist is constructed in the "Procedure of Radiation Safety Management of The Research Reactor"so-called PM-ST-01, which is contained as a control document in the ISO 9001 system of TINT. The main purpose of the PM-ST-01 is to implement the nuclear and radiation safety evaluations for workers and visitors in the TRR-1/M1 performed by the health physicists. This procedure is also consistent with the regulations such as the "Ministerial Regulations Prescribing Conditions How to Get a License and Operations on Special Nuclear Materials, Source Material, By-Product Material, Atomic Energy B.E. 2550 (A.D. 2007)", "Ministerial Regulations on Radiation Safety, B.E. 2561 (A.D. 2018)", and "Announcement of the Nuclear Energy for Peace Committee on Safety Criteria B.E. 2562 (A.D.2019)". The main responsibilities of the health physicists in the PM-ST-01 include (1) the preparation of nuclear-measuring instruments for ready to use, (2) the safety control for radiation workers and visitors, (3) the inspection of radiation exposure from I-131 radionuclide and others, (4) the investigation of contamination from fission product in reactor coolant during operation, and (5) the safety mechanism service of irradiated sample transfer. All tasks in the PM-ST-01 are explained in the flow-chart working in all operation time. The safety procedures of PM-ST-01 for the health physicists have been used to serve the safety management regulation of the reactor and to-create the safety mechanisms for radiation workers and visitors of TRR-1/M1 effectively.

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