OCCUPATIONAL RADIATION PROTECTION LEGISLATION IN ISRAEL

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A committee of experts appointed by the Minister of Labour and Social Affairs has proposed a comprehensive draft regulation, concerning the legal aspects of occupational radiation protection in Israel. The main sections of the proposed regulation are:

1. Control - general
2. Personal monitoring
3. Medical supervision

CONTROL - GENERAL

The first section of the proposed regulation sets forth guidelines for control in facilities where workers handle radioactive materials or radiation equipment. The managers of such places should take the following steps:

a) Nominate a radiation protection officer
b) Advise the inspector of the Ministry of Labour and Social Affairs of all unusual occurrences
c) Procure the equipment necessary for shielding and monitoring of radiation.
d) Restrict access to hazardous areas
e) Ensure compliance with the regulations for the safe operation of the facility
f) Train the radiation workers
g) Advise the officials of radiation exposure in excess of the maximum recommended doses.

Table 1 shows the maximum radiation doses recommended for normal operation.

During special jobs, which cannot be performed under the limitations specified for normal operation, radiation workers may be exposed to twice the annual recommended radiation dose, or - once in a lifetime- to the annual dose multiplied by a factor of five. After such an exposure, further exposure of the worker should be avoided if the integrated dose exceeds (N-18) x the annual dose limit, where N is the age of the radiation worker. The doses given in the table are actual doses, and should not be considered as design base doses for normal operation. Design base doses should be kept as low as reasonably achievable. The annual limits do not include medical exposure. In case of a simultaneous exposure of several tissues, the calculated overall equivalent of the whole body dose should not

exceed the limit indicated for the whole body. The doses should be reduced by a factor of 10 for 16 to 18 year-olds, whose exposure should be allowed only if it is connected to professional training, for which a special permit should be required.

TABLE 1. Maximum recommended doses for radiation workers during normal operation

Tissue	Dose to individual workers (Rem/y)*
Whole body	5
Gonads	20
Breast	25
Thyroid	50
Bone	50
Bone marrow	25
Lungs	25
Eyes	30
Other single organs	50

*1 Rem = 10 millisievert

PERSONAL MONITORING

The second section deals with the monitoring regulations for radiation workers who may be exposed to doses in excess of 500 mRem/y. The regulations stipulate that these workers should:

a) wear radiation badges, to measure external exposure
b) be checked for internal radioactive contamination
c) report on all employment in which they may be exposed to additional radiation.

MEDICAL SUPERVISION

Medical check-ups are required for all applicants for work which involves radiation. Also, radiation workers are required to undergo routine periodical examinations, the type of the examination to be determined by the type of work performed. Radiation workers must also be examined following overexposure or accidents.

A. Routine examinations

Compulsory routine examinations should include the following:

a) Complete clinical check-up
b) General urine analysis
c) Blood count: hemoglobin, white count, differential and thrombocyte count
d) Complete anamnesis, including medical and occupational history.

B. Special examinations

Special examinations of radiation sensitive organs and tissues should be performed according to the type of work and circumstances. These examinations include:

a) Blood analysis, including bleeding and coagulation time, in case of whole body exposure to radiation
b) Skin examination, in case of external exposure
c) Periodical eye examinations,usually once in five years,or once in three years for X-ray machine operators and in special cases, such as exposure to neutrons
d) Chest X-ray, investigation of the performance of the lungs, liver and kidneys, and analysis of internal contamination, in case of internal exposure and contamination.

The results of the medical check-ups should be recorded in a health report, which should be kept for 30 years by the medical authorities. The main results are also recorded on a personal health card. The following information should be recorded on the card:

a) Date and purpose of check-up
b) Any positive finding of the medical check-up or laboratory tests
c) Occupational disease or effects detected
d) Decision on whether the worker is medically fit to work with radiation
e) Date of next medical check-up
f) Name and signature of physician.

ADDITIONAL RECOMMENDATIONS

In addition to the draft regulations, the committee proposed several codes of practice encompassing the principles of radiation protection, compliance, inspection and licensing.

A series of recommendations were also made by the committee, to the Minister of Labour and Social Affairs, indicating the need to:

a) Nominate a national advisory committee for ionizing radiation, safety and hygiene
b) Establish a central medical authority, to deal with emergency cases of high exposure to radiation
c) Publish safety rules for work with ionizing radiation
d) Spell out the training and experience required of persons who install and maintain ionizing radiation machines
e) Establish curricula for the training and instruction of radiation workers, according to the type of work
f) Spell out standards for ionizing radiation machines and radiation measurement instruments.

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