**Appendix 2 -** **NEA Medical Certificate for Radiation Users Licences (L5, L6, R1 Licences)**

CONFIDENTIAL (a)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **MEDICAL** CERTIFICATE *(@ Delete as appropriate)* | Regulations 13(2)(a) and 18 of the Radiation  Protection (Ionising Radiation) Regulations, 2000  *(Please read notes on the reverse of this form)* | | | | | | | | | | | | | | | | |
| **EXAMINATIONS** | RESULTS AND/OR PERTINENT REMARKS | | | | | | | | | | | | | | | | |
| HISTORY | | | | | | | | | | | | | | | | | |
| Family |  | | | | | | | | | | | | | | | | |
| Medical |  | | | | | | | | | | | | | | | | |
| Occupational |  | | | | | | | | | | | | | | | | |
| CLINICAL (b) - please attach details | | | | | | | | | | | | | | | | | |
|  | @ Satisfactory / Unsatisfactory | | | | | | | | | | | | | | | | |
| **SPECIAL INVESTIGATIONS (c)** | | | | | | | | | | | | | | | | | |
| Dermatological |  | | | | | | | | | | | | | | | | |
| Ophthalmological |  | | | | | | | | | | | | | | | | |
| Pulmonary |  | | | | | | | | | | | | | | | | |
| Gynaecological |  | | | | | | | | | | | | | | | | |
| Neurological |  | | | | | | | | | | | | | | | | |
| Other - please specify |  | | | | | | | | | | | | | | | | |
| Name of Laboratory | @ Satisfactory / Unsatisfactory (Date of Examination | | | | | | | | | | | |  | | | | ) |
|  | If unsatisfactory, reason | | | | | | | | | | | | | | | | |
|  | |  | | | | | | | | | | | | |  | |
| Hb |  | | gm/100ml | RBC | | |  | | M/mm3 | | WBC | |  | | /mm3 | |
| Neu |  | | % | Lymph | | |  | | % | | Mono | |  | | % | |
| Eos |  | | % | Baso | | |  | | % | | Platelets | |  | | x 109/L or 103/mL | |
|  |  | | | | | | | | | | | | | | | | |
| STATEMENT | | | | | | | | | | | | | | | | | |
| This is to certify that |  | | | | | NRIC No. | | |  | | | | | | employed by | | |
|  | | | | | | | | | | | has undergone a medical examination by | | | | | | |
| me and I am of the opinion that @ he / she is @ fit / unfit to be engaged in radiation work (e). | | | | | | | | | | | | | | | | | |
|  | | | | | | |  | | | | | | | | | | |
| *Date* | | | | | | | *Signature of Medical Practitioner* | | | | | | | | | | |
|  | | | | | | |  | | | | | | | | | | |
| Address of Hospital/Clinic | | | | | | | *Name of Medical Practitioner* | | | | | | | | | | |

**FOR OFFICAL USE**

Remarks:

MC1

Notes:

1. This certificate should be given to the examining Medical Practitioner for completion and should be submitted together with the application form to:-

Head, Ionising Radiation Control Section

Radiation Protection and Nuclear Science Department

National Environment Agency

Environment Building

3rd Storey, Annex Block

40 Scotts Road, Singapore 228231

(b) A clinical examination need only include a chest or other X-ray examination if there are indications present to suggest that such an examination is desirable or the person has been or will be exposed to radioactive dusts, aerosols or gases. Unless there are special reasons for doing so, an X-ray examination made within the last six months should not be repeated but rather efforts should be made to obtain results of that previous examination.

(c) Only those organs or functions which are regarded as particularly vulnerable to, or important for protection against, the radiation hazards encountered in the work to be undertaken need be specially investigated.

e.g.- A dermatological examination is important for a person handling unsealed sources (as any lesions

might promote ingress of radioactive material through the skin); a person handling beta sources (as beta are largely absorbed in the skin and sub-cutaneous tissue and large doses due to close proximity to the source could cause localised erythema or radiation burns); and a person operating strong sources such as are encountered in industrial radiography or maintenance of X-ray machines (as even momentary contact with such sources is damaging and observed as erythema, skin burns or erosion of the ridges of the finger).

An ophthalmologic examination is important for a person working with strong beta sources (as beta are absorbed in the body's surface layers and the eyes are particularly sensitive with the possibility of opacities of the lens after receiving large accumulated doses); or a person exposed to non-ionising radiations such as microwaves, infra-red or laser (which can produce lens opacities) or ultra-violet (which at wavelengths below 320 nm can produce severe post exposure discomfort). Red/green blindness should be noted for workers operating X-ray control panels with coloured indicators lights.

A pulmonary examination is important for a person likely to be exposed to radioactive dusts, aerosols or gases (as in such cases the lungs could receive higher doses than other organs and are particularly susceptible to radiation induced neoplasms. Any reduction in the ability to clear the lungs of particulate will also increase residence times and consequent dose to lung tissue).

Females of reproductive age working with unsealed sources, gamma, X-ray or neutron sources, but not sealed beta or alpha source (as their radiation has insufficient ability to penetrate) should be investigated for onset of pregnancy which, although not a disqualifier for radiation work, does require stricter dose limits to be observed. Sterility and amenorrhea can be caused by large doses of radiation (several Sievert). Such symptoms should be investigated to rule out any link with radiation exposure.

A neurological examination is of particular importance for a person handling unsealed sources or performing other delicate operations where a spill or uncontrolled movement might result in a radiation hazard.

Other special investigations may be important in certain specific areas of work, such as an examination of the thyroid for a worker in danger of intake of substantial quantities of an iodine radionuclide or the stomach and lower large intestine for a worker in danger of ingesting insoluble radionuclides.

(d) The definition of "full blood examination" in The Radiation Protection (Ionising Radiation) Regulations 2000, means:-

(i) an estimation of the haemoglobin in grams per 100ml of whole blood;

(ii) an estimation of the number of red blood cells present per mm3 of whole blood;

(iii) an estimation of the number of white blood cells present per mm3 of whole blood;

(iv) a differential white cell count;

(v) a platelet count.

Any abnormal results should be investigated to ascertain the cause. However, the full blood examination serves mainly to establish a rough baseline in order that a comparison can be made following any accidental radiation overdose. Results historically outside of normal limits need not on their own render a person unfit to be engaged in radiation work.

(e) Where the person examined is considered unfit to be engaged in radiation work, please provide reasons.

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