

PETRONAS TECHNICAL STANDARDS
HEALTH, SAFETY AND ENVIRONMENT

RADIOGRAPHY
(GUIDELINE)

PTS 60.1507.02

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PREFACE

PETRONAS Technical Standards (PTS) publications reflect the views, at the time of publication, of PETRONAS Group of Companies and Joint Ventures.

They are based on the experience acquired during the involvement with the design, construction, operation and maintenance of processing units and facilities. Where appropriate they are based on, or reference is made to, national and international standards and codes of practice.

The objective is to set the recommended standard for good technical practice to be applied by PETRONAS Group of Companies and Joint Ventures in oil and gas production facilities, refineries, gas processing plants, chemical plants, marketing facilities or any other such facility, and thereby to achieve maximum technical and economic benefit from standardisation.

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AMENDMENTS RECORD SHEET

Chap No.	Sect No.	Description	Issue No.	Date	Rev No.	Date	App by: (initial)
All	All	PTS 60.107 Radiography safety and Emergency Procedure	1	Sept 04	0	0	IGA

Chap No.	Sect No.	Description	Issue No.	Date	Rev No.	Date	App by: (initial)
All	All	PTS 60.1111 Radiography	1	June 04	0	0	IGA

Chap No.	Sect No.	Description	Issue No.	Date	Rev No.	Date	App by: (initial)
All	All	PTS 60.1507.02 Radiography	2	June 06	1	June 06	IGA

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1. SCOPE

- 1.1** This procedure is designed to cover the minimum safety requirements in radiographic testing, using both X-ray machines and radioactive isotopes in site industrial radiography within PETRONAS operations.
- 1.2** All NDT contractors providing radiographic inspection, either directly or indirectly, are required to adhere to, as a minimum, the provision of this Procedure at all times.

2. **APPLICABLE DOCUMENTS**

The following documents, latest revision, are referenced in formulating this safety procedure in industrial radiography.

1. Atomic Energy Licensing Regulations, Malaysia
2. Radiation Protection (Basic Safety Standards) Regulations 1988 [P.U. (A) 61]
3. IAEA Safety Standard
4. Code of Practice for site Radiography by HM Factory Inspectorate, London
5. ICRP Publication No. 35 - General Principles of Monitoring for Radiation Protection of Workers.
6. Radiation Protection (Transport) Regulation 1989.

3. **DEFINITION**

Site Radiography -	Radiography performed anywhere other than that in a fixed installation.
Radiation Protection Officer/Supervisor (RPO/RPS) -	An individual duly approved by AELB and authorised in writing by the Contractor. He shall also be the Competent Person of the Contractor.
Authorised Radiographer -	Qualified/experienced Radiographer who has passed examination set by Atomic Energy Licensing Board (AELB) and been trained to deal with site radiography emergency. He shall be the Assistant RPO/RPS.
Classified Worker -	Individual whose employment involves the use of radioactive isotopes and/or X-ray machines and whose work at anytime takes him into a radiation area, i.e. an, area where the radiation dose is liable to exceed 7.5 microsieverts (0.75mR)/hr. Radiographers are classified workers.
Other Persons -	Persons who may be exposed to ionising radiations, as a result of working nearby, but who are not directly involved. They should be made aware of the significance of warning signs and signals and the necessity of staying outside the radiation barriers.

4. THE NDT CONTRACTOR

- 4.1** The NDT contractor involved in radiographic work shall hold a valid licence from the Atomic Energy Licensing Board (Lembaga Perlesenan Tenaga Atom) for the appropriate classes, a copy shall be extended to the Company user department.
- 4.2** The contractor shall ensure that all radiation workers are approved by the Atomic energy licensing Board to deal with radioactive and irradiation equipment. He shall inform the Board and the OPU/JV in writing if there is any transfer/termination/recruitment of radiation workers.
- 4.3** The contractor shall appoint a Radiation Protection Officer/Supervisor (RPO/RPS) duly qualified by the Board to be responsible for radiation safety matters and with Authorised Radiographers to deal with site emergencies, within their capabilities when away from Base. 24-hour contact shall be available for the RPO/RPS and this contact detail shall be extended to the Company.
- 4.4** The contractor shall ensure that his classified employees do not receive radiation in excess of the following dose limit

Effective dose equivalent for the body

Annual	Quarter
50mSv (5 REM)	30mSv (3 REM)

and that the public and other persons are not exposed to avoidable radiation. If they have to, then, the annual effective dose equivalent limit for the whole body shall not exceed 5mSv (0.5 REM) and quarterly 3mSv (0.3 REM).

- 4.5** The contractor shall keep, as a minimum, the following records:

Isotopes plus decay tables
Monthly dose of classified workers
Radiation level surrounding the storage facilities
Excessive dose received by workers
Unintentional dose during accidents
Movements/transfer or isotopes
Medical examination records

and a copy of each shall be extended to the User department regularly.

- 4.6** The contractor shall have a Radiation Safety procedure approved by the Company. The contents of this procedure should be in accordance with the relevant company Safety Manual or Guidelines.
- 4.7** In addition, as the Licence Holder, the contractor shall adhere to the conditions laid down in the Licence issued by AELB.