Training and Education Requirements for Occupational Radiation Protection in Industrial Radiography

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Introduction

Training on radiation protection and radiographic testing is required by law and international standards.

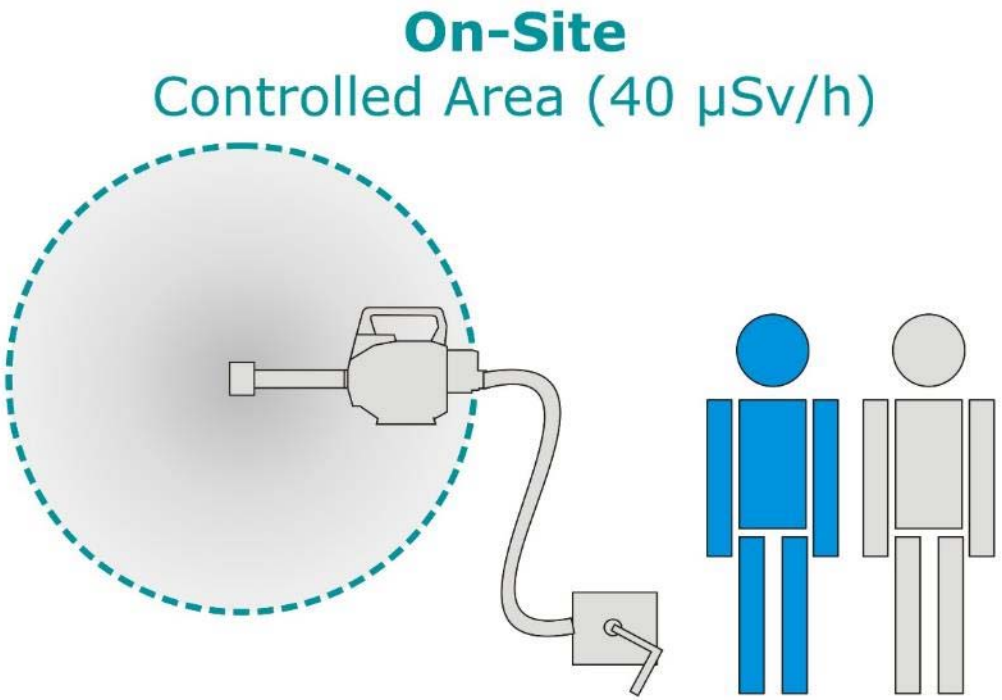
- Law – Radiation Protection (RP)
  - Atomic Law
  - Radiation Protection Ordinance
  - X-Ray Ordinance
- International Standards – Radiographic Testing (RT)
  - DIN EN ISO 9712

Every Radiation Protection Officer (RPO) is liable for his in-plant authority.

- RPO for overall direction
- RPO on-site

Work experience is much more difficult to ensure.

On-site Situation



two persons

- usually personnel of the NDT company owing the radioactive source

category A

- dose limit 20 mSv
- preventive occupational medical care

instructed

- equipment technologies
- radiation protection

radiography

- level 1 or 2
- supervised by level 3 (prob. not present on site)

RPO – On-Site

- 4 days RP course
- education not specified
- work experience 3 to 12 month

RP & RT – Requirements

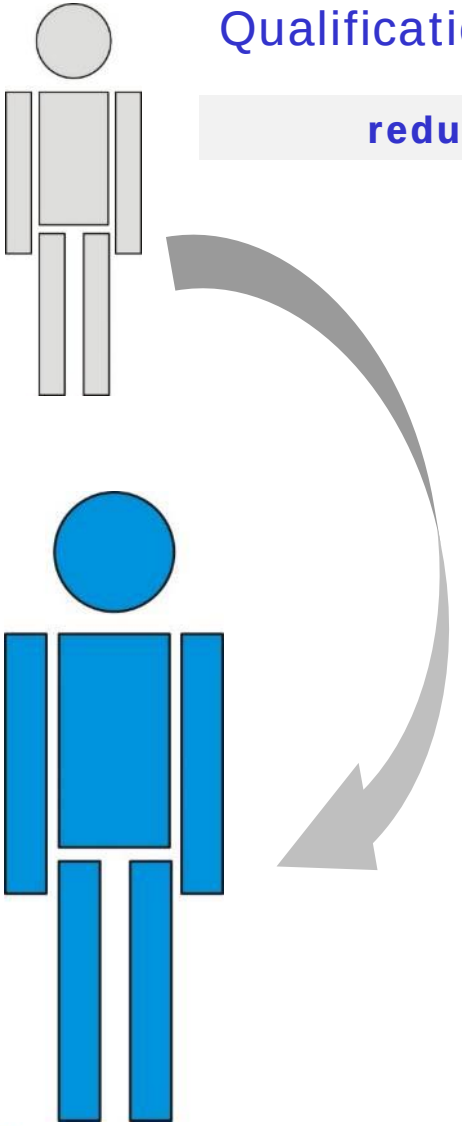
German Training Guidelines - Radiation Protection (RP)

	Over all direction	On-site
Gamma-Radiography	Training: 5 d	Training: 4 d
	Education: technical or scientific	Education: not specified
	Work experience: 3 - 12 month	Work experience: 3 - 12 month
X-Ray-Radiography	Training: 4 d	Training: 2,5 d
	Education: technical or scientific	Education: not specified
	Work experience: 6 - 8 month	Work experience: 4 - 8 month

DIN EN ISO 9712 - Radiogaphic Testing (RT)

	Training in h	industrial NDT experience in month
Level 1	40 20 (e.g. graduated)	3
Level 2	40 + 80 20 + 40 (e. g. graduated)	3 + 9
Level 3	40 + 80 + 40 20 + 40 + 20 (e.g. graduated)	3 + 9 + 36 month 3 + 9 + 18 (graduated)

First steps in NDT – On-site Radiography



Qualification e.g. *„precision mechanic“*

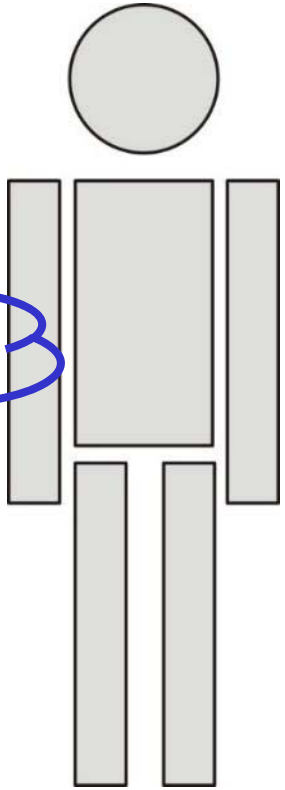
reduced work experience in RP

RT: 10 % of req. NDT experience before Exam

4 day RP course

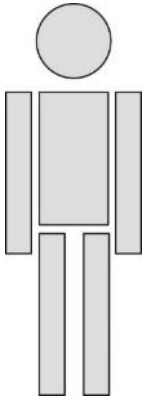
RP course – On-site Radiography

German Training Guideline according to RP and X-ray Ordinance



- Legal Regulations
- Tasks of RPO
- Natural Science Basics
- Measuring Device and Technique
- RP Technique
- RP Safety and Security
- Practicum and Demonstration
- Exercises
- Equipment Techniques
- Exam

First steps in NDT – On-site Radiography



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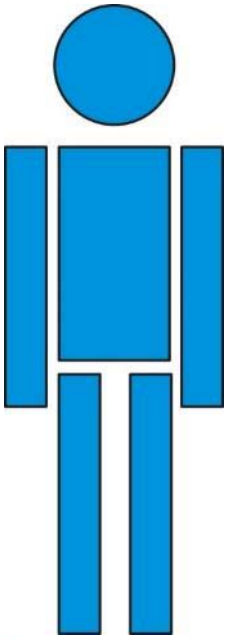
4 day RP course



7 day industrial NDT experience for RT level 1

10 day RT level 1 course

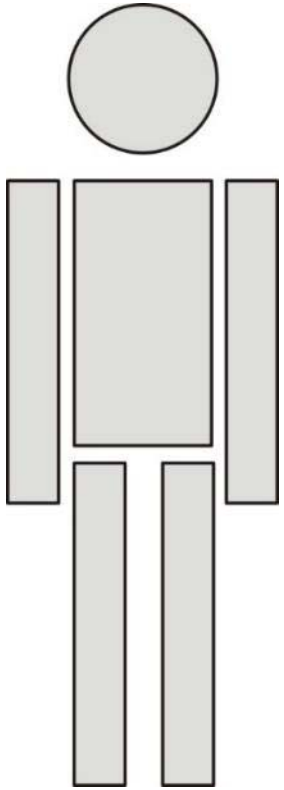
RT course – Level 1

DIN EN ISO 9712 & ISO/TR 25107

Introduction to, terminology and history of NDT

Physical principles of the method and associated knowledge

Product knowledge and capabilities of the method and its derivate techniques



Equipment

Information prior to testing

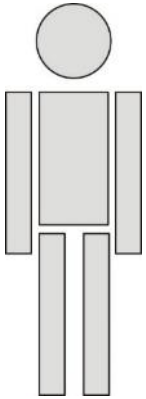
Testing

Evaluation and Reporting

Quality aspects

Exam

First steps in NDT – On-site Radiography



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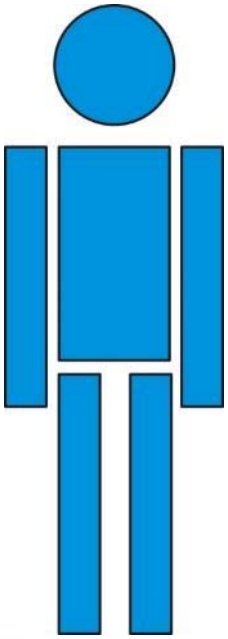

7 day industrial NDT experience for RT

10 day RT course

9 week industrial NDT experience for RT

RT certification level 1

Third Party

3 month work experience supervised by RPO

Qualified for RP On-site

Competent Authority

On-site Radiography

Conclusion

RP an RT training provides a profound theoretic basis.

Exercises during the courses give first insights in practical work conditions for industrial radiography.

It is up to the employer to ensure that the trainee will be able to apply his knowledge in practice. And therefore ensure work experience in RP and industrial NDT experience for RT.