

# *RISK ASSESSMENT*



# *INTRODUCTION*



- Risk Assessment?
- Five Steps to Risk Assessment

# RISK ASSESSMENT



What is it?

*'A risk assessment is simply a careful examination of what, in your work, could cause harm to people, so that you can weigh up whether you have taken enough precautions or should do more to prevent harm. Workers and others have a right to be protected from harm caused by a failure to take reasonable control measures.'* HSE

# RISK ASSESSMENT



Why do it? – [audio file](#)

- In most countries, the use of specific materials or the operation of specific facilities is not allowed unless it can be shown that they do not increase the risk of death or illness above a certain threshold  
..... Legislation!

# *RISK ASSESSMENT*



Why do it?

- Health & Safety at Work Act etc 1974
- Management of Health & Safety at Work Regulations 1992 (1999)
- Ionising Radiations Regulations 2017

# *IONISING RADIATIONS REGULATIONS 2017*



- “An employer shall not carry out work with ionising radiation unless he has made an assessment of the radiation hazard to employees or other persons .... in the event of any reasonably foreseeable accident, occurrence or incident.”

# IONISING RADIATIONS REGULATIONS 2017



- “Before a radiation employer commences a new activity, in respect of which no risk assessment has been made by him, he shall make a suitable and sufficient assessment of the risk to any employee and other person.....”
- “All hazards which could cause a radiation accident to be identified and evaluated.”

# SUMMARY



## Why do it?

- Employers are legally required to have done a risk assessment
  - suitable and sufficient
  - identify measures needed to restrict exposure
  - identify and quantify potential radiation accidents



# RISK ASSESSMENT



Why do it? – Good Practice

A Good Risk Assessment Can :

- Identify steps to prevent radiation accidents occurring
- Limit the effects of radiation accidents
- Prepare employees for coping with radiation accidents
- Draw up contingency plans



## Who does it!

RPA? ✘

Local RPS? ✘

Safety Committee? ✘

User? ✔

## *STEP ONE*



- Hazard identification
- Determine the nature of the potential adverse consequences of using radiation
- Use the literature!
- Don't forget other hazards associated with the experiment or procedure.



## STEP TWO

- Decide who might be harmed and how
- Don't forget ....
- Young persons, trainees, new or expectant mothers, cleaners, visitors, contractors, maintenance workers, members of the public, people who share your workplace....

## STEP THREE

- Evaluate the risk – is it high or low?
- Deterministic - dose threshold
- Stochastic - ALARP
- Exposure assessment - decide how likely it is to cause harm
- Risk control – decide on suitable measures
- Even with precautions, is remaining risk high, medium or low?

## *STEP THREE CONTINUED*



- Are all things required in law done? Don't stop there - is the remaining risk small? If not, how to make it small?
- Think about other possible occurrences - moving sources within the site, new staff, risk of lost sources, human factors.



## STEP FOUR

- Record your findings
  - Only a legal requirement if five or more employees
  - Minimum record to include
    - Date, hazard e.g. isotope, activity (MBq)
    - External / internal, contamination, spills, personal contamination, waste disposal, lost material etc
    - Personnel at risk - names
    - Special Risks (eg 1 team member pregnant, need to work between two laboratories, control measures)

## *STEP FOUR CONTINUED*



- Other risks – e.g. toxic chemical
- Assessment must be signed by author
- Assessment must be reviewed by DRPS / RPA

Finally – implement your findings!





## STEP FIVE

- Review your assessment and revise it if necessary
- Changes leading to new hazards
- Periodic review to make sure still fit for purpose



<http://www.gla.ac.uk/services/radiationprotection/information.html>

Example

Worked Example

# *RISK ASSESSMENT*



The five steps!

- <http://www.hse.gov.uk/pubns/indg163.pdf>



## Risk Control

- Eliminate – can the hazard be removed - Substitute
- Reduce the risk by -
  - Physical, engineering or administrative controls?
  - Protective equipment needed (e.g. safety glasses, gloves etc)
  - Need for training?
  - Procedures to follow (e.g. monitor area before/after use)
  - Specific area set out – e.g. Controlled Radiation Area?

[next](#)