

# CBRN Academy

*“Advanced (R&N) Radiation and Nuclear Training Course”*

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## PROGRAMME PLAN



# TRAINING PROGRAMME

## SCP “Advanced (R&N) Radiation and Nuclear Training Course”

### Target audience:

First Responders, NGO’s, Civil Defence, Police/Security Personnel, Medical, Municipal (city) services and civil- / corporate organizations

### Participants:

Max 25 (Min 20)

(Mandatory to have received **SCP Basic CBRN course** before this course)

### Duration:

80hrs (2 weeks)

### Content:

#### Day 1

(Week 1)

##### **Introduction to Radiation**

Basic definitions of types of radiation (alpha,beta,gamma,neutron)

General Introduction to concepts

Concept of contamination, exposure, dose and dose rate

##### **Isotopes**

What is an isotope?

Why is this important?

What isotopes are of concern for security and anti-terrorism?

##### **Scale, Safety and Risk**

Detailed discussion of what units are used to measure Radiation and Radioactivity?

How much is a lot and how much is little?

What levels of Radioactivity is a hazard?

##### **Sources of Radiation (Natural)**

Background Radiation

Commonly found sources of Radiation in the environment

##### **Source of radiation (Medical, Industrial, Scientific)**

Detailed discussion of the types of sources of Radiation that can be Found in Industry, Commerce, Science and Medicine

#### Day 2

##### **Overview of Nuclear Power Plants and Accidents**

How does Nuclear Power Plants work?

What are the kinds of things that can go wrong?

Why do we need to know about Nuclear Power Plants?

##### **Radiological Terrorism**

Basic concepts about how terrorists might use Radiology

##### **Historical studies of Radiation incidents**

Studies of several Radiation incidents, both accidental and incidents.

Summary of lessons learned from these situations

### **Nuclear Smuggling**

General overview of Nuclear smuggling

Why is it important?

What are some of the basic problems encountered?

### **Introduction to Radiation Detection**

Basic concepts of Radiation detection

Basic types of radiation detectors, monitors, identifiers etc.

## **Day 3**

### **Radiation Detection: Dosimeters and Dosimetry (Equipment TBD)**

How to operate the dosimetry instrument(s) used by the client?

### **Radiation Detection: Detection and Monitoring (Equipment TBD)**

How to operate the basic monitoring equipment and instrument(s) used by the client?

### **Practical “Live” Exercises**

1. A general exercise in detecting and measuring several “live agent” radiation sources
2. A specific exercise in monitoring for surface contamination
3. A specific exercise in location specific “Live” radiation sources

### **Radiation Detection: Isotope Identification (Equipment TBD)**

How to operate the Isotope identification equipment and instrument(s) used by the client?

### **Practical “Live” Exercise**

A practical exercise where the students will use “Live” Isotope identification equipment to identify several different Isotopes, both singly and in combination

## **Day 4**

### **Radiological Dispersal Devices “Dirty Bombs”**

What is an RDD “Dirty Bomb”?

What are some characteristics of this particular threat?

### **Radiological Decontamination**

Basic procedures for radiological decontamination

### **Respond to a suspected RDD “Dirty Bomb” incident**

General procedures for dealing with an RDD incident, including:

1. Scene Management
2. Identifying the sources and establishing a perimeter
3. Responder Safety
4. Managing victims
5. Collection of evidence

### **Swedish Briefing 1 & 2**

Briefing from Swedish Government Agency

## Day 5

### **Briefing and Introduction**

General orientation on how the “Real Scenario Training” exercises are going to work.

Students will be divided into Response Teams

Equipment will be issued

### **Exercise 1**

A basic counter-terrorism exercise where the students have to search several types of buildings such as: Hotels, Hospitals, Apartments, Garage etc. and search over areas to locate a possible stolen Radiation sources. Many innocent Radiation sources will make this situation very complex.

### **Exercise 2**

A complex RDD “Dirty Bomb” scenario where the students will be expected to manage a complex incident with both ambulatory and non-ambulatory victims (real playing actors). They will be expected to survey the site, identify hazards and identify the Isotope(s) involved in the incident.

## Day 6

(Week 2)

### **Review of Week 1**

Short review of principles and information from week 1

### **Nuclear Weapons and Fallout**

General description of the effects of nuclear weapons. Discussion of the hazards downwind from a nuclear detonation

### **Medical Effects of Radiation**

How Radiation and radioactive material can damage the human body.

Some basic information on how to prevent or minimize harm

### **Forensics and Evidence in Radiation Terrorism Incidents**

How to collect and preserve evidence in a radiation incident  
Basic discussion of evidence collection equipment, techniques and procedures relevant to Nuclear/Radiological incidents.

## Day 7

### **Common sources of false alarms**

General discussion and specific examples of false alarms produced by many innocent substances and situations

### **Radiation Detection in the Port and Border Environment – Cars and Trucks**

How to scan cars and trucks for radioactive substances and materials, common mistakes that could be made

### **Practical Exercise**

Searching for Radiation sources in cars and trucks

### **Radiation Detection in the Port and Border Environment – Cargo and Containers**

How to examine cargo containers and similar cargo for Radioactive materials

**Practical Exercise**

Practical exercise searching for Radiation sources in cargo containers full of various kinds of cargo

**Day 8**

**Medical Isotopes and why they make radiation detection difficult**

Overview of the medical Isotopes that are likely to be encountered.

How to conduct an interview with someone who has triggered a Radiation alarm.

**Radiation Detection in the Fixed Facility Protection Environment**

How to use Radiation detection equipment to protect buildings and critical infrastructure.

How to do this while minimizing the impact on operations or causing problems to building occupants or the public.

**Short Exercise**

Brief exercise simulating the operations at a protected facility, including field interviews with people who may have medical Isotopes.

**Radiation detection in the Urban environment**

How to conduct radiation detection in towns and cities.

Examples of various situations which will occur in such operations.

Identification of certain problems and issues that will be encountered.

**Short Exercise**

Brief exercise with several examples of situations encountered in the urban environment.

**Day 9**

**Field Trip Part 1**

Field trip to locations of interest, sites where Radiation sources are used in a medical or operational environment.

**Field Trip Part 2**

Field trip to Gothenburg container port to understand the complexities of Radiation detection in the ports and borders environment.

**Day 10**

**Briefing and introduction**

General orientation to how the exercises are going to work, students will be divide into response teams and equipment will be issued.

**Exercise Part 1**

Exercise involving inspection of cargo and searching for radiation sources in a port that is near a city.

This exercise will involve both urban and cargo search operations with "live" agents.



**Contact us to discuss your needs!**



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