

# National Training Course on Physical Protection of Nuclear Material and Nuclear Facilities

18 to 22 February, 2013 Mumbai, India

## National Training Course on Physical Protection of Nuclear Material and Nuclear Facilities

18 to 22 February, 2013 Mumbai, India



**GLOBAL CENTRE FOR NUCLEAR ENERGY PARTNERSHIP**

**And**

**BHABHA ATOMIC RESEARCH CENTRE**



भारत की सेवा में परमाणु  
BHABHA ATOMIC RESEARCH CENTRE

## Table of Contents

<b>S. No.</b>		<b>Page No.</b>
<b>1.</b>	<b>Introduction .....</b>	<b>3</b>
<b>2.</b>	<b>Objective.....</b>	<b>3</b>
<b>3.</b>	<b>Training Course Participants.....</b>	<b>3</b>
<b>4.</b>	<b>Faculties.....</b>	<b>4</b>
<b>5.</b>	<b>Session Details.....</b>	<b>4</b>
<b>6.</b>	<b>Training Course Material.....</b>	<b>5</b>
<b>7.</b>	<b>Concluding Session.....</b>	<b>5</b>
<b>8.</b>	<b>Conclusion.....</b>	<b>6</b>
<b>9.</b>	<b>Annexures</b>	
	<b>List of Participants.....</b>	<b>7</b>
	<b>List of Faculties.....</b>	<b>9</b>
	<b>Photos.....</b>	<b>10</b>
	<b>Feedback.....</b>	<b>11</b>

## **1.0 Introduction**

This report presents a summary of the GCNEP - BARC National Training Course (NTC) on “Physical Protection of Nuclear Material and Nuclear Facilities” organized at Mumbai during February 18 – 22, 2013. Report includes the overview of the topics covered, list of participants and faculties and photographs. A brief conclusion of the training course is also presented at the end of the report.

This was the first National Training Course for security personnel organized by GCNEP and BARC on Physical Protection of Nuclear Material and Nuclear Facilities. The Training Course was held at ATI, Vikram Sarabhai Bhavan, Anushaktinagar, Mumbai. Prior to this NTC, seven regional training courses (RTCs) have been conducted in association with IAEA on Physical Protection of Nuclear Material and Nuclear Facilities in the year 2003, 2004, 2005 ,2007, 2009 , 2010 and 2011. A RTC was also organized on “Security of Radioactive Materials” in the year 2006. In addition one NTC on Protection against Sabotage and Vital Area Identification was organized in Mumbai in the year 2010. However, all of the RTCs as well as NTCs were for technical as well as security personnel and not restricted to any particular category of personnel.

## **2.0 Objective**

The objective of the training course is to provide participants with the general understanding of approaches on Physical protection of Nuclear Material and Nuclear Facilities against theft and sabotage covering basic design and evaluation techniques and related technical systems. The NTC also aims at bringing the state of art in electronic security systems and their applications in the nuclear security.

## **3.0 Training Course Participants**

As this is a National Training Course, and as the topic deals with Physical Protection of Nuclear Material and Nuclear Facilities, participation was restricted

to departmental and CISF security personnel. The training course was attended by 30 participants, 10 departmental security officers from different DAE units and 20 CISF personnel deployed at different DAE units including research centers like BARC, IGCAR, VECC, RRCAT etc., nuclear power plants (NPP), multi-facility sites like Tarapur, Rawatbhata and Tarapur etc., **Annexure – A** gives the list of participants with their affiliating organization. Participants were carefully chosen to represent various types of nuclear facilities like nuclear power plant, back end and front end fuel cycle facilities, research centers etc.

#### **4.0 Faculties**

A total of 18 faculty members were involved for deliberation of different lectures. All faculties were drawn in-house from BARC, DAE, NPCIL, IGCAR, AERB and NRB.

**Annexure – B** gives the list of faculty members involved in the training course with their affiliating organization.

#### **5.0 Session Details**

The training course was inaugurated by Shri G P Srivastava, Director, E&IG and Project Director, GCNEP. Other distinguished persons present in the inauguration function includes Shri S. Duraisamy, Vice Chairman, AERB, Shri S.G. Markandeya, Controller, BARC and Shri Anil Kumar, Inspector General (Security), DAE. Many distinguished guests from BARC, NPCIL, NRB and AERB were present in the inaugural session.

The training course duration was 5 days which included 23 lectures. Topics covered in the training course are

- Define PPS Requirements
  - Facility characterization,
  - Target identification,
  - Threat definition,

- Legal & regulatory requirements
- Design of PPS
  - Intrusion detection,
  - Alarm Communication & Display,
  - Alarm Assessment,
  - Personnel and material access control,
  - Delay
  - Response
- Evaluation of PPS
  - Path and neutralization analysis
  - Insider & scenario analysis
- PPS Practices used in India
  - Design and Implementation of PPS in Indian NPPs
  - Safety and Security for Transport of Radioactive Material : Practices in India
  - Concepts of PPS at multi facility sites

## **6.0 Training Course Material**

Printed training course material in three volumes, providing presentation view graphs and the lecture text was distributed to all participants. The three sets covers the following :

- i) Requirements of PPS,
- ii) Design of PPS
- iii) Evaluation of PPS.

A Training course DVD containing all the presentations and texts and other essential nuclear security information was distribute. Training course kit containing three printed volumes, a DVD and other necessary materials were distributed to all participants and faculties.

## **7.0 Concluding Session**

The training course successfully came to an end on 22<sup>nd</sup> February afternoon after a feedback session from the participants. Certificates were distributed to all participants by-

Dr. D N Sharma, Director Health, Safety & Environment Group, BARC

Shri Anil Kumar, IG(S), DAE

Brig. A Mazumdar Director, S&C, BARC and

Shri H. Mishra, GM, NRB.

## **8.0 Conclusion**

Most of the participants have given the feedback that the training course will be very useful for them in their working field in future and overall the program was very valuable. The lectures were very useful in understanding the subject. Most of the participants also requested to include demonstration of security gadgets. Printed presentation material, lecture notes and other technical documents provided were well appreciated by everyone and they found it quite informative.

All the training course presentations were very lively and interactive. Enthusiastic involvement was observed during the entire course from all the faculty members as well as from all participants. Refer annex – D for a details of the feedback received.

This is the first time a training course on this topic was conducted exclusively for security personnel in India. Considering the requirement for knowledge up-gradation and constant up-gradation in the security systems and gadgets more such training courses in the related areas will be arranged in the future.

## Annexure – A

### List of Participants with Affiliating Organization

Sr. No.	Name & Designation	Unit
1.	Shri S.S. Khade, ASO	BARC, Mumbai
2.	Shri S.R. Chaudhari, ASO	BARC, Mumbai
3.	Shri P.N. Sawant, ASO	BARC, Mumbai
4.	Shri Rajesh Rawat, SI/Exe	BARC, Mumbai
5.	Shri C.K. Yadav, SI/Ex	BARC, Mumbai
6.	Shri Swarastra Ranjan, SI/Ex	BARC, Mumbai
7.	Shri V.T. Pawar, SO	DCSEM, DAE
8.	Shri C.N. Kuchekar, SO	DCSEM, DAE
9.	Shri Samsher Singh, ASO (B)	RRCAT, Indore
10.	Shri S. Bhattacharya, ASO (A)	VECC, Kolkata
11.	Shri G.P. Kolwadkar, ASO(B)	AMD, Nagpur
12.	Shri P. Siva Sankar, ASO/B	RMP, Mysore
13.	Shri Shankar Dayal Swami, SI/Exe	RMP, Mysore
14.	Shri Prabhunath Singh, Manager (Security)	IREL, OCOSM
15.	Shri Omkar Singh Panwar, Inspector/Exe	NAPS, Narora
16.	Shri Arun K. Das, SI/Exe	NAPS, Narora
17.	Shri B.S. Rathore, Inspector/Exe	RAPS, Rajasthan
18.	Shri K. Dasan, SI/Exe	RAPS, Rajasthan
19.	Shri Rupesh Kumar, SI/Exe	RAPS, Rajasthan
20.	Shri Varun Kr. Pandey, Asst. Commandant	DAE, Kalpakkam
21.	Shri Arun Saxena, Insp/Ex	DAE, Kalpakkam
22.	Shri Pankaj Kr. Sharma, SI/Exe	DAE, Kalpakkam

23.	Shri Anupam Tomar, SI/Ex	KAPS, Kakrapar
24.	Shri Avinash Anizwal, Insp/Exe	KKNPP, Kudankulam
25.	Shri Deep Chandra, SI/Exe	KKNPP, Kudankulam
26.	Shri V.V. Geesh Kumar, Insp/Exe	NFC, Hyderabad
27.	Shri Nirmal Kr. Soni, SI/EX	NFC, Hyderabad
28.	Shri Radheshyam Rathore, Insp/Exe	TAPS, Tarapur
29.	Shri Vinay Kr. Rai, SI/Exe	TAPS, Tarapur
30.	Shri Syoji Ram Choudhary, SI/Exe	KGS, Kaiga



## ANNEXURE - B

### List of Faculty Members

1.	Shri L B Mahale	AERB, Mumbai
2.	Shri Fedric Lall	AERB, Mumbai
3.	Shri Ranajit Kumar	BARC, Mumbai
4.	Smt Meghla D Chaudhary	BARC, Mumbai
5.	Shri A Majumdar	BARC, Mumbai
6.	Shri Anand Laddha	BARC, Mumbai
7.	Shri A K Sharma	BARC, Mumbai
8.	Shri Ansul Kumar	BARC, Mumbai
9.	Smt Ranjana Kulgod	BARC, Mumbai
10.	Shri Anil Upreti	BARC, Mumbai
11.	Shri A S Salunke	BARC, Mumbai
12.	Shri R Keshwani	BARC, Mumbai
13.	Shri Pradeep Kumar	BARC, Mumbai
14.	Shri M P Srivastva	BRIT, Mumbai
15.	Shri Anil Kumar	DAE, Mumbai
16.	Shri S A V Satya Murty	IGCAR, Kalpakkam
17.	Shri Uma Prasad	NPCIL, Mumbai
18.	Shri H Mishra	NRB, Mumbai

## ANNEXURE – C



**Inauguration by Director, E & I Group, BARC Shri G P Srivastava**



**Unveiling of course material**



**Participants attending course in Lecture hall**

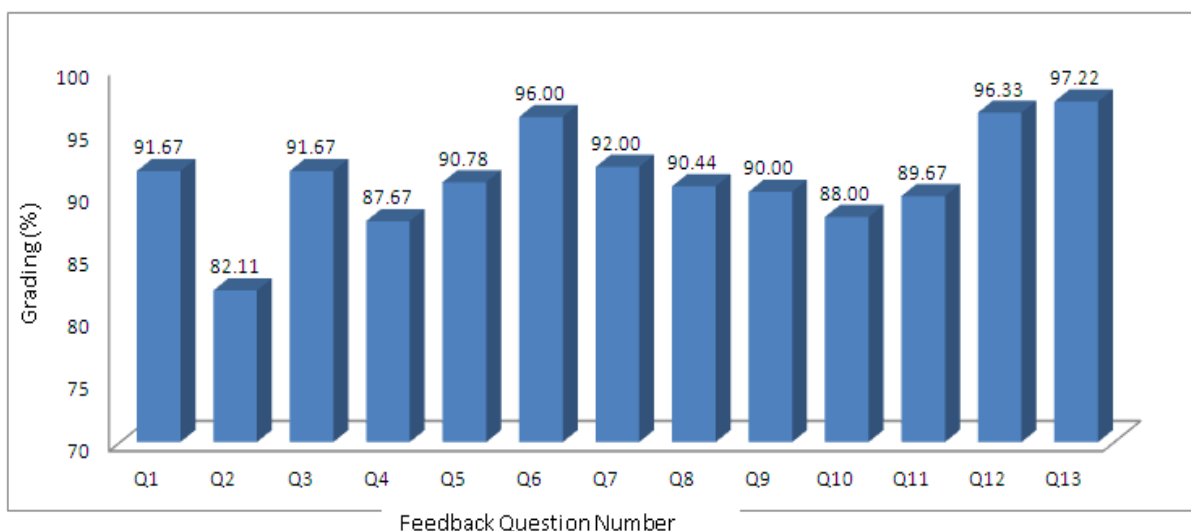


**Group Photo**

## Annexure – D

<b>Qt. No.</b>	<b>Feedback Question</b>	<b>Grading out of 9</b>	<b>Grading in Percentage (%)</b>
Q1	The lecturers had sufficient knowledge in the subject matter	8.25	91.6
Q2	The lecturers addressed my content, skill- needs and interests	7.39	82.1
Q3	The lecturers answered my questions effectively	8.25	91.6
Q4	The program effectively involved participants	7.89	87.6
Q5	The sessions were well organized	8.17	90.7
Q6	The information in the program may be useful for my work in future	8.64	96
Q7	The course material and the audio visual were informative	8.28	92
Q8	The course material was easy to understand	8.14	90.4
Q9	I learned new information from the sessions	8.10	90
Q10	Overall, this program was interesting for me	7.92	88
Q11	Overall, the lecturers were effective	8.07	89.6
Q12	Overall, this program was valuable and my time spent well	8.67	96.3
Q13	I would recommend this program for others	8.75	97.2

## Over all feedback



### Feedback received from Participants:

1. The participants felt that the course will be very useful for their future work.
2. The participants found the study material provided during the course was very helpful for future reference and for improvement in their work.
3. Most of the participants gave the feedback to include the demonstration of various technical gadgets with field training.
4. The participants were very keen to know about the AERB norms for PPS and AERB guidelines for security at a nuclear facility.
5. They suggested to include some additional training sessions for visiting related places i.e. control room, practical PPS evaluation techniques and Mock drill.
6. The participants found the 1 week course very exhaustive and suggested to increase the course duration up to 2 weeks for better understanding and exposure of the topics.
7. Many participants recommended conducting the training course in both Hindi and English languages.