

# AERB

e-Newsletter

Atomic Energy Regulatory Board



[www.aerb.gov.in](http://www.aerb.gov.in)

July-September  
2019



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*The mission of AERB is to ensure that the use of ionising radiation and nuclear energy in India does not cause undue risk to health of people and the environment*

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## From the Chairman's Desk



### **Festive Season's Greetings to all.**

The last quarter has been a significant milestone for the entire scientific community. AERB places on record heartfelt appreciation for the untiring efforts of all the scientists from ISRO as well as DAE family who were associated with the Chandrayan-2 project.

As a requirement under the Convention on Nuclear Safety (CNS), to which India is a party, AERB coordinated the preparation of National Report which has been submitted to IAEA on August 15, 2019.

It will be reviewed in the upcoming peer review meeting of Contracting Parties to the Convention scheduled in March 2020.

The 63rd Regular Session of the IAEA General Conference and the Senior Safety and Security Regulators' Meeting was held at Vienna, Austria in September 2019. It was a privilege to be part of the delegation led by Chairman, Atomic Energy Commission for participating in this prestigious event. The Meeting had sessions dedicated to managing regulatory competence for nuclear safety and nuclear security and application of the concept of graded approach in core regulatory functions.

As a part of our continued efforts to reach out to the general public, AERB participated in one of its kind workshop organized by Department of Atomic Energy (DAE) for journalist and media personnel at Rawatbhata Site with the aim of spreading awareness on societal applications of radiation. Our participation in the event was well appreciated. AERB also keeps organizing various events for safety promotion in licensee organizations. One such event is the Annual Meet for Safety and Occupational Health professionals of DAE units, which AERB organizes every year in collaboration with one of the constituent units of DAE. This year the meet was organized jointly with Nuclear Fuel Complex (NFC) at Hyderabad in August 2019. It was an enriching experience sharing event on industrial and occupational safety related topics. Details of these events together

with other ongoing safety promotional events for stakeholders as well competency development activities for AERB staff are elaborated in this issue of e-newsletter.

On the work front, KAPS-1, after replacement of the coolant channels and obtaining necessary approvals from AERB, has resumed operation and both KAPS-1&2 units are operating now. With regard to KAPP-3, hot conditioning of primary coolant system, which is one of the major milestones in the commissioning programme, has been completed.

Our past regulatory experience feedback on radiography practices had necessitated the need to amend the Safety Code on Industrial Radiography with a view to infuse more trained manpower to further elevate the level of safety in this practice. Accordingly, AERB had issued the amended Safety Code in August 2019, details of which is available on AERB's website. I am also extremely delighted to inform about the simplification in the registration process of dental X-ray equipment in our web based licensing system eLORA.

It gives me great pride to inform that Bhoomi Poojan ceremony of construction of new building (NB-C) was held on September 11, 2019. This will be the third building in the existing premises at Headquarters.

As a part of the initiative of Hon'ble Prime Minister of India and the Department of Drinking Water & Sanitation, Ministry of Jal Shakti, New Delhi towards effective ban of Single Use Plastic (SUP), AERB actively participated in 'Swachhata Hi Seva 2019' by undertaking "Shramdaan". Plastic wastes from nearby areas of AERB were collected. As part of the programme, our officer presented a talk to the school students on plastic pollution and its effects on the environment.

**I urge all my fellow countrymen to keep the environment clean as a befitting tribute to the Father of our Nation on his 150<sup>th</sup> Birth Anniversary celebration.**



(G. Nageswara Rao)

## Safety Review and Regulation

The Board meeting was held on September 13, 2019. Highlights of the important activities and the safety status of the regulated installations were presented to the Board. The Board members deliberated on the status of disused sealed radioactive sources (DSRS) in the country and actions initiated for their disposal. Board expressed concern over four fatal accidents in the nuclear facilities and recommended for enhanced safety supervision by plant management and improvement in medical management of industrial accidents.



AERB Board Meeting

### Consenting of Nuclear and Radiation Facilities

The following Licences/Approvals/Clearances were issued/renewed during the period:

- i) Kakrapara Atomic Power Station units (KAPS-1&2) successfully completed the En-masse Coolant Channel Replacement (EMCCR) campaigns after stagewise review and approval from AERB. The licence for operation of KAPS-1&2 was renewed for next five years.
- ii) The proposal for enhancement of production capacity of Zirconium Complex, Pazhayakayal was reviewed and accepted by AERB considering available design margins and increased recovery of raw materials and reduction in effluent generation.
- iii) Licence for operation of Rajasthan Atomic Power Station (RAPS) -1&2 and authorization for safe disposal/ transfer of Radioactive Waste for RAPS-1&2 and Waste Management Facility (WMF), Kota were issued.
- iv) Clearance was issued for Hot-Conditioning and associated Hot-tests for Unit-3 of Kakrapara Atomic Power Project (KAPP).
- v) 5,884 Licences were issued to medical, industrial and research radiation facilities.

## Regulatory Inspection

Regulatory inspection of NPCIL Headquarters at Mumbai was conducted by AERB during August 26-30, 2019 to verify compliance to the requirements prescribed for the Responsible Organisation in the AERB safety codes for design, construction and operation of nuclear power plants. The implementation of QA programme was also verified during this inspection. During this inspection deviation of high significance was not observed.



Meeting of AERB and NPCIL Management

## Enforcement in Diagnostic Radiology

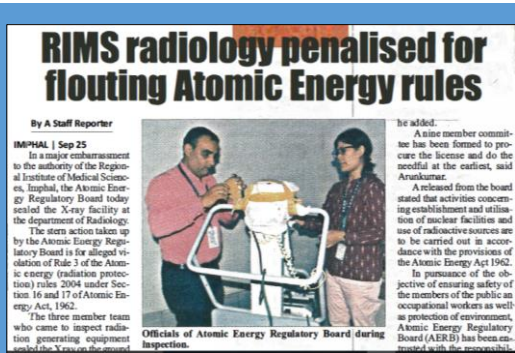
AERB carried out special inspection-cum-enforcement actions in diagnostic X-Ray facilities in the States of Assam, Manipur, Meghalaya and Nagaland during September 23-26, 2019. Inspection teams visited 53 institutions (including Government Hospitals/Medical Colleges and private X-ray centres) and inspected 207 equipment, out of which 11 X-ray equipment were sealed and 'Warning for Seal' was issued to 91 X-ray equipment due to non-compliance of regulatory requirements.

Though X-ray equipment are of low radiation hazard potential, it is important that they are installed and operated in accordance with the radiological safety requirements specified by AERB.

Under AERB's campaign on "Radiation Safety Jaagrukta Seva" for enhancing safety consciousness / self-regulation, officers spread awareness and educated users about AERB's online portal eLORA (e-Licensing of Radiation Applications) for licensing of radiation facilities.



Imphal  
Shillong  
Guwahati  
Tinsukia  
Dibrugarh  
Digboi  
Dimapur  
Kohima



## Amendment of Safety Code on Industrial Radiography (IR)

Based on the lessons learnt from recent incidences w.r.t. handling of radiography devices by untrained persons and feedback of stakeholders regarding scarcity of trained personnel in industrial radiography practice, a need was felt to infuse more trained manpower to elevate the level of safety in the practice. In view of this, the AERB Safety Code on Industrial Radiography [AERB/RF-IR/SC-1 (Rev.1) 2015], has been amended. As per newly approved requirement, a candidate with minimum one year course from Industrial Training Institute (ITI) and with one year working experience is also eligible to undergo Training course on 'Radiological Safety for Industrial Radiographer' at par with candidate possessing 10+2 or equivalent examination with science subjects. The term "trainee" in radiography is changed to "intern".

One of the stringent requirements of six months 'prior' experience is replaced with field experience of six months in an approved industrial radiography institution as an intern after completion of the training. This modification is aimed at improving the availability of qualified industrial radiographers and also accommodating the fresher's entering in this field without compromising on radiation safety.

The amendment in this regard has been issued on August 02, 2019 details of which is available on AERB website.

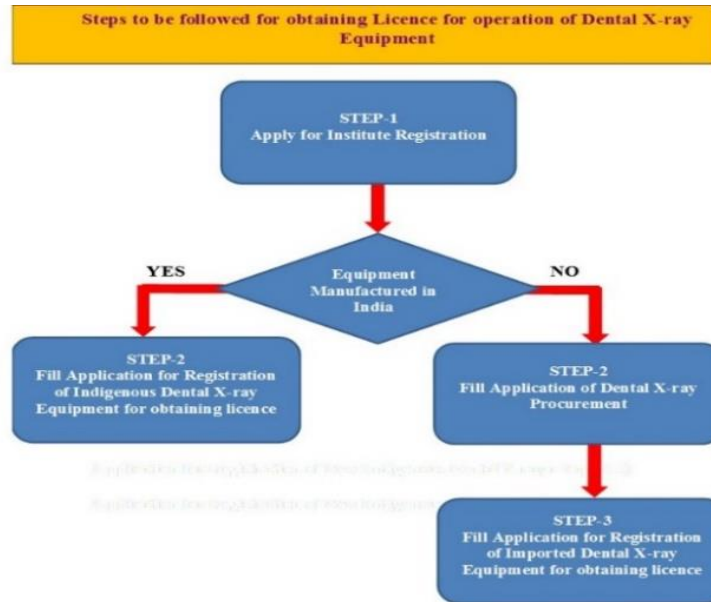
## Initiatives towards Minimum Government and Maximum Governance

### ❖ Licensing of Medical X-ray Facilities

In pursuance to its continued regulatory efforts for effective regulation of medical equipment emitting ionizing radiation, Chairman, AERB has written to Principal Secretaries of all State Governments/UTs requesting their co-operation to sensitize the owners/end-users of clinics/hospitals to obtain AERB Licence for operating medical equipment emitting radiation such as X-ray / CT scan equipment, through District Health Authorities under their jurisdiction.

### ❖ Simplification in Registration of Dental X-ray Equipment

The module for processing applications for Licence (in the form of Registration) for operation of Dental X-ray equipment has been simplified and made functional in AERB's e-LORA system. Now, the Registration for operation of dental X-ray equipment manufactured in India can be obtained in two steps and equipment manufactured abroad can be obtained in three steps. Also, validity of Registration Certificate of all types of dental X-ray equipment has been extended from existing five years to ten years.



### International Cooperation

#### ❖ IAEA General Conference

Shri G. Nageswara Rao, Chairman, AERB attended the 63<sup>rd</sup> Regular Session of the IAEA General Conference and the Senior Safety and Security Regulators' Meeting held during September 16 - 20, 2019 at Vienna, Austria. The delegation was led by Shri K.N. Vyas, Chairman, Atomic Energy Commission (AEC).

Shri Rao attended the Senior Safety and Security Regulators Meeting on September 19, 2019. Sessions were held on "Managing regulatory competence for nuclear safety and nuclear security" to obtain Member States' perspectives and on "Application of the concept of graded approach in core regulatory functions".

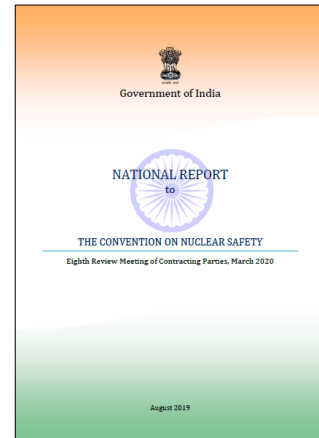


Shri K.N. Vyas, Chairman, AEC and Shri. G. Nageswara Rao, Chairman AERB in IAEA General Conference



❖ **Convention on Nuclear Safety (CNS)**

The Government of India ratified the Convention on Nuclear Safety on March 31, 2005. AERB submitted National Report for 8<sup>th</sup> Review meeting of CNS on August 15, 2019. It is the fifth report being submitted by India. The Report updates upon how the Government of India continues to fulfill its obligations under Articles 6 through 19 of the Convention. All land-based nuclear power plants and associated facilities are covered in the report. It also addresses the national position with regard to the Vienna Declaration on Nuclear Safety for the implementation of the objectives of CNS. The report will be reviewed by Contracting Parties of the Convention.



❖ **Co-operation with Regulatory Authority of Mauritius (RSNSA)**

Radiation Safety and Nuclear Security Authority (RSNSA), the regulatory authority of Mauritius, requested assistance in the review and assessment of layout design of the proposed radiotherapy and nuclear medicine facilities at New Cancer Hospital (NCH), Solferino, Mauritius. AERB reviewed the layout plans for installation of radiotherapy equipment (Accelerators, Cyberknife unit, HDR Brachytherapy, CT Simulator) and nuclear medicine equipment (SPECT-CT & PET-CT machines) from radiation safety viewpoint and provided the assessment report and recommendations to RSNSA.

**Discussion Meet/Technical Meet/Safety Promotional Activities**

**(i) Technical Meet**

Technical Meet on “Safety Perspectives in Reactor Containment & Systems Design, Assessment and Quality Assurance” was organized by SRI-AERB at Kalpakkam during August 8-9, 2019, with an aim to provide a platform for experts from DAE units to share their experience on containment systems’ design, construction, functional testing & reliability, quality assurance, ageing management, regulation and safety assessment and to disseminate information on the present state-of-the-art systems.



Shri. G. Nageswara Rao, Chairman AERB delivering the Inaugural address



Dignitaries and other delegates at the Technical Meeting

The deliberations in the meeting provided directions for robust containment design, related regulation and features for preventing and mitigating accidents. The discussions also provided the necessary thrust and direction in focusing future research activities in challenging areas, and reorientation of the collaborative research activities among the participating organizations.

## (ii) DAE Safety Professional Meet

The 36<sup>th</sup> DAE Safety & Occupational Health Professionals' Meet, 2019 was jointly organized by AERB and Nuclear Fuel Complex (NFC) at NFC, Hyderabad during August 21-23, 2019 to promote awareness about safety and occupational health aspects in DAE. The themes of this year's Meet were:

- ❖ **“Effective management of occupational experience towards enhanced industrial safety”** related to industrial safety aspects and
- ❖ **“Effective management of medical emergencies at workplace”** related to occupational health aspects.

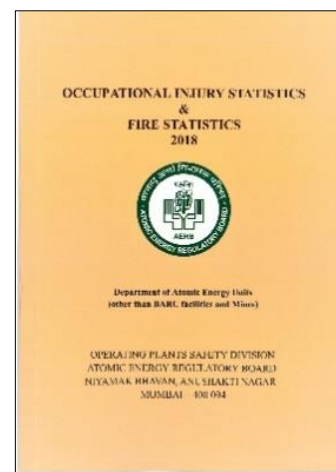


Shri G Nageswara Rao, Chairman, AERB delivering the Inaugural Address



Dignitaries inaugurating the Meet by lighting the lamp

In technical sessions, distinguished persons from industrial safety & occupational health delivered lectures on the topics relevant to the theme. Around 200 delegates from various DAE units & aided institutes, participated in this Meet. During the meet, private manufacturers showcased their safety appliances and exhibitions by AERB, BARC and ECIL focused on public awareness about safety and regulatory aspects. The ‘Occupational Injury Statistics and Fire Statistics - 2018’ was released during the meet.



### (iii) Awareness Programme

An awareness programme on 'Safety and Regulatory Requirements for Diagnostic Radiology (DR) Facilities' was organised by Eastern Regional Regulatory Centre (ERRC) of AERB at Kolkata on July 30, 2019 for the employer and/or representatives of the newly registered DR facilities. Lectures on various topics such as, safety & regulatory requirements for DR; personnel monitoring; exposure cases & guidelines of eLORA were delivered. Medical practitioners, X-ray Technologists and Bio-medical engineers from West Bengal, Odisha & Assam attended the programme. A leaflet on "Radiation safety in use of Radiography and Computed Tomography Medical Equipment" was distributed to the participants.



Shri M. K. Pathak, Officer-in-Charge, ERRC delivering the lecture in Programme



Participants of the Awareness Programme

### (iv) Awareness on Proper Storage of TLD

Personnel Monitoring Service (TLD Badges) are used to monitor radiation doses received by personnel working in radiation facilities. Many cases of Excessive Exposure to operators (such as X-ray technologists, medical practitioners) working in diagnostic X-ray facilities are reported to AERB. During review of the cases, common observation for these exposures is the TLD badges left/ stored inside X-ray room is resulting in non-genuine excessive exposures. In order to minimise such non-genuine excessive exposure cases, AERB has prepared an informative poster on proper storage of the TLD badges and circulated to all the X-ray facilities.



Awareness Poster on Proper Storage of TLD

## (v) Strengthening Control Movement of Devices Containing Radioactive Sources

Based on lessons learnt from recent incidences of misplacement of package containing radioactive material, AERB directed all well-logging and industrial radiography facilities to affix legible and durable radiation warning sign and details of institute engraved on a steel tag on the container/ devices used for radioactive sources being frequently transported for field job. The container shall be anchored to the vehicle (e.g. with metal chain and pad lock).

The above action was initiated to minimize the chances of mishandling of radioactive sources, in case of loss of equipment or container in the public domain. The warning sign will serve as a supplementary to the radioactive symbol (trefoil) for warning to the public to keep away, if such devices are found in the public domain.

The sketches of the Warning Sign and Metallic tag are as shown below.

### RADIATION WARNING SIGN



**CAUTION: RADIATION, KEEP AWAY**  
सावधान: विकिरण, दूर रहिये।  
**LOCAL Language:**

### METALLIC TAG

(Following to be engraved)

**Name of the institution & City:**

**Contact no.:**

**Warning:** This container contains **RADIOACTIVE** material. If found **DO NOT OPEN**. Please inform to the above address or inform nearby police station.



Radiography device with Legible and Durable Radiation Warning Sign

### Public Outreach Activity

#### ❖ DAE-National Union of Journalist (India), School of Journalism Workshop

AERB participated for the first time in one-of-its-kind Workshop for the Journalists, organised by DAE in collaboration with the National Union of Journalists (India), School of Journalism [NUJ(I)-SJC] at RAPS Rawatbhata, Rajasthan during August 5-9, 2019.

Workshop involved series of lectures from the experts and close interactions on the subject. A lecture was delivered from AERB on 'Regulatory & Safety Aspects in Application of Radiation Sources for Societal Benefits' in the workshop. AERB had set up an informative exhibition stall to showcase AERB's role in Nuclear and Radiation Safety. Apart from journalists, many students from schools/colleges, general public from nearby places visited AERB exhibition stall.



#### ❖ Safety Systems Excellence Awards & Conference for Industry

AERB participated in '8<sup>th</sup> Safety Systems Excellence Awards & Conference for Industry' organized by Federation of Indian Chambers of Commerce and Industry (FICCI), held on September 26, 2019 at New Delhi. The theme of conference was "Workplace Safety & Occupational Health". AERB apprised the participating industries on various societal applications of ionizing radiation and regulations for safe usage of radiation sources.

## Human Resources Development

### ❖ Training Course on Cyber Security

Now-a-days, computer based systems are being deployed at many nuclear facilities to perform various important functions associated with Safety and Security of the Facility. A five day training course on “Fundamentals of Computer Security” was conducted for AERB officers during August 5-9, 2019 at AERB. The objective was to impart a baseline knowledge to the participants which is essential for conducting review and inspection of computer security aspects. The course is first-of-a-kind, designed and delivered by AERB.



Chairman, AERB and Executive Director, AERB addressing the participants during inaugural Session of Training Course

### ❖ Integrated Management System

AERB has implemented Integrated Management System (IMS), which integrates all the processes and practices required for functioning of AERB into one complete framework with primary focus on leadership for safety at all levels in the organisation. An interactive awareness programme was organised for the officers and staff of AERB on August 06, 2019. The lectures on various topics such as (i) An Overview of IMS of AERB; (ii) Leadership and Management for Safety; (iii) Introduction to IMS documents (Level I, II and III) were delivered by AERB officers.

### ❖ AERB Colloquia

AERB colloquia on following topics were organised during the period.

- The accident at Tokaimura narrating ‘Description and Progression of Event’, ‘Health Effects of the Accidents’ and ‘Emergency Preparedness Aspects of the Accident’
- Civil Liability for Nuclear Damage Act, 2010

- Accident Tolerant Fuel
- Geotechnical Safety of Nuclear Facilities



Speakers Dr. K. L. Ramakumar, Shri Avinash Gaikwad and Shri Somnath Jha delivering talks in AERB colloquia

### Infrastructure Development

#### ❖ Bhoomi Poojan Ceremony of Construction of New Office Building

AERB had proposed construction of new building in addition to existing two wings (Niyamak Bhavan - A&B) at its HQ. Bhoomi Poojan ceremony of construction of new building (NB-C) was held on September 11, 2019. Shri G Nageswara Rao, Chairman, AERB, Shri Dinesh Kumar Shukla, Executive Director, AERB and Shri B. K. Jain, Director, Directorate of Construction Services and Estate Management (DCSEM) graced the occasion.



Shri G Nageswara Rao, Chairman, AERB and Shri Dinesh Kumar Shukla, Executive Director, AERB performing the Bhoomi Poojan

## Official Language Implementation

### ❖ Hindi Workshop

Three-day Joint Hindi workshop was organized during August 28-30, 2019 at AERB in order to offer new insight into implementation of Official Language (OL) policies of Govt. of India. During the workshop, talks were delivered on various topics and aspects of Hindi noting and drafting, Hindi correspondence, OL Rules and DAE activities & achievements. Thirty personnel from BRIT, HWB, DPS, DCSEM and AERB participated in the workshop.



Participants of Hindi Workshop



Shri K. Ram Prasad, Co-chairman, OLIC, AERB delivering inaugural address



Smt. S. Madhavi, AO-III, AERB distributing the certificates to participants



## ❖ Celebration of Hindi Day

Hindi Day was celebrated by Joint Hindi Coordination Committee at DAE Convention Centre on September 18, 2019.

On this occasion, six AERB personnel were awarded for their excellent performance in various competitions organized as a part of Hindi Day Celebration. AERB Quiz Team secured first rank among all the participating teams.



AERB employees (L to R), S/Smt. Suchita Modi, Anju Jaiswal and Shobha Shettigar receiving the prizes in Hindi Competitions

## 'Swachhata Hi Seva – 2019' Programme

As part of 'Swachhata Hi Seva - 2019' programme, AERB performed 'Shramdaan' on September 27, 2019 for an hour at its premises and in the vicinity of AERB complex in furtherance to the initiative of Hon'ble Prime Minister of India and the Department of Drinking Water & Sanitation, Ministry of Jal Shakti, New Delhi towards effective ban of Single Use Plastic (SUP). Chairman, AERB led the group of officers and staff in the "Shramdaan".



Chairman, AERB and staff members participated in 'Shramdaan'

AERB for the last one year has already taken adequate measures to eliminate use of plastic in canteen as well as supply of mineral water bottles during meetings. All the employees are discouraged from using plastic carry bags.

As a part of Swachhata Hi Seva, AERB Officer delivered a talk to the students and staff of Atomic Energy Central School – 1, Anushaktinagar on September 25, 2019 and discussed about plastic pollution and its effects on the environment and eventually on the marine animals leading to plastic intake by human beings.



Shri Vaibhav Gholap, AERB delivering talk to the Students and staff of Atomic Energy Central School - 1, Anushaktinagar, Mumbai

### New Appointments / Retirements

AERB manpower is being augmented at different levels and through various channels in view of the expanding nuclear power programme and increasing number of radiation facilities in the country. This is being done through fresh recruitments, transfer of experienced personnel from operating plants and R&D institutes like BARC and IGCAR and induction of postgraduates through AERB Graduate Fellowship Scheme (AGFS) in IIT Bombay and IIT Madras.



Total sanctioned strength of AERB is 468 and the present strength as on September 30, 2019 is 343 comprising of 274 scientific and technical and 69 Administrative / Accounts / Auxiliary staff.

During the period, AERB recruited 11 scientific officers in the grade of SO(C), of which 6 joined through AGFS and 5 from BARC, IGCAR and NFC Training Schools.

S. No.	Name	Designation	Date of Appointment	Remarks
1.	Kum. Bharti Banshiwal	SO(C)	22-07-2019	AGFS
2.	Shri Avinash Mishra	SO(C)	22-07-2019	AGFS
3.	Shri Rachuri Chaitanya	SO(C)	22-07-2019	AGFS
4.	Shri Somnath Patra	SO(C)	22-07-2019	AGFS
5.	Shri Sayan Haldar	SO(C)	22-07-2019	AGFS
6.	Shri Mathura Prasad Sav	SO(C)	22-07-2019	AGFS
7.	Shri Lakshit Choudhary	SO(C)	01-08-2019	Training School
8.	Shri Sharique	SO(C)	01-08-2019	Training School
9.	Shri Jatin Ahuja	SO(C)	01-08-2019	Training School
10.	Shri Shreeraj Kurkure	SO(C)	01-08-2019	Training School
11.	Shri Srijon Guha	SO(C)	01-08-2019	Training School
12.	Shri B. Mohan Kumar	APO	05.09.2019	Joined AERB on transfer from NFC, Hyderabad

Personnel Retired/Transferred/Resigned in AERB during July-September, 2019

S. No.	Name	Designation	Date	Remarks
1	Smt. Poorva Kaushik	SO(D)	02-07-19	Resigned
2	Dr. Dharendra Kumar Jha	SO(F)	02-07-19	Transferred to BARC
3	Shri V. Balasubramanian	OS & Director, SRI, Kalpakkam & Director, NSARG, AERB	31-08-19	Superannuation
4	Smt. Lalitha B.	APO	04-09-19	Transferred to NFC, Hyderabad
5	Shri M.S. Sathe	APRO	27-09-19	On promotion to RRCAT, Indore

## AWARDS and HONOURS



Shri Santosh K. Pradhan, SO(G), NSAD received Ph.D. degree from Indian Institute of Technology Bombay, Mumbai for his thesis titled "Coupled Neutronics Thermal-Hydraulics Safety Analysis of Large Nuclear Power Reactors" in the 57<sup>th</sup> Convocation Ceremony held on August 10, 2019.



Shri Raj B. Solanki, SO(G), R&DD received Ph.D. degree from Indian Institute of Technology Bombay, Mumbai for his thesis titled "Reliability Assessment of Passive Safety Systems in Nuclear Power Plants" in the 57<sup>th</sup> Convocation Ceremony held on August 10, 2019.



Shri Bibekananda Mishra, SO(E), RSD, AERB received Ph.D. degree from Tata Memorial Center, Mumbai under Homi Bhabha National Institute, Mumbai for his thesis titled "Study of Dosimetric Characteristics of a Flattening Filter Free Medical Accelerator for its Clinical Use" on September 5, 2019.

## Farewell

### AERB Bids Farewell to Shri V. Balasubramanian



Shri V. Balasubramanian, Outstanding Scientist (OS) & Director, Safety Research Institute (SRI), Kalpakkam & Director, NSARG, AERB retired on superannuation on August 31, 2019. He was directing SRI since June 01, 2010. He is Mechanical Engineer and recipient of Homi Bhabha Medal from the 28<sup>th</sup> batch of BARC Training School, Mumbai.

A farewell was organised in AERB Executive Committee on August 19, 2019 at Mumbai. Shri Balasubramanian's professional achievements were recalled and appreciated.

## Feedback

We appreciate feedback from readers /stakeholders. If you have any question or comment, please send us on AERB Feedback Portal.

**Materials published in AERB newsletter may be reprinted or translated freely with due acknowledgement.**

### Prepared by

Shri Pravin J. Patil, R&DD

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