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AERB

Newsletter

ATOMIC ENERGY REGULATORY BOARD

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From the Chairman's Desk

I am happy to share some of my thoughts through this Newsletter after taking over from Prof. S.P. Sukhatme who laid down the office of Chairman, AERB on 14th January 2005. Prof. Sukhatme guided this organisation with profound care and affection using his immense experience and wisdom. Through his efforts he was able to raise the stature of AERB by several notches in the true professional sense. We at AERB express our sincere gratitude to him for the yeoman service rendered to this institution.

The first quarter of the year 2005 was a busy period for AERB. The Project Design Safety Committee for TAPP 3&4 had marathon sessions reviewing the design and pre-commissioning aspects of this project. Subsequently, after review in the Advisory Committee for Project Safety Review, clearance was accorded for the first criticality of the 540 MWe Tarapur Atomic Power Unit-4. Shortly thereafter, the Unit achieved criticality in a very smooth manner. This certainly was a mega event in the history of nuclear power in India. Authorisation was also issued for increasing the beam energy of Indus-1 Booster Synchrotron from 450 MeV to 700 MeV, which is the first step towards the commissioning of the 2.5 GeV Accelerator at the Centre for Advanced Technology, Indore. Another authorisation that was issued after discussion in the Board was for operation of the first open cast uranium mine in the country at Banduhurang near Tatanagar.

The nuclear energy programme in the country is expanding rapidly. This poses a formidable challenge to AERB since safety reviews also have to match this fast pace but without sacrificing on the quality of the reviews. This makes a heavy demand on the available resources in the organisation. We are now trying to augment our manpower by induction of additional staff through various sources. Appropriate training programmes for our new colleagues are also being formulated.

We are trying to develop new in-house capabilities and improve upon existing expertise in AERB in several areas such as reactor physics, thermal-hydraulics, structural and seismic analysis and probabilistic safety analysis. This effort is in the direction of improving the quality of regulation, which in turn leads to enhancement of safety. We have also embarked upon the programme of expediting development of new safety documents and revision of existing ones, where required. Sometime back a system of preparing the Safety Document Development Proposal and its thorough review before taking up the writing of a new document was introduced. With this all major aspects to be covered in the proposed document get finalised in advance thereby avoiding the need for any major changes subsequently.

In the area of international co-operation, we had two discussion meetings during this period, one with the USNRC during 7-11 Feb. 2005, and the second with Rostekhnadzor, the regulatory body of the Russian Federation during 21-24 Feb. 2005. During these deliberations a number of interesting nuclear safety topics of mutual interest were discussed and were found to be extremely useful by all participants.

Lastly, it is gratifying to note that a significant reduction has been achieved in the collective radiation exposures at our NPPs in the year 2004. We may recall that a Discussion Meeting on this topic was organised by AERB in December 2003 where several recommendations got generated. Concerted efforts have been made thereafter by all concerned and the outcome is clearly seen in the results obtained. I complement each and every person who has contributed in this effort and hope that the work in this direction will continue.

Shri S.K. Sharma Appointed as Chairman, AERB



Shri S.K. Sharma becomes
new Chairman, AERB

Shri S.K. Sharma took over as Chairman of the Atomic Energy Regulatory Board (AERB) from Prof. S.P. Sukhatme

who relinquished office on January 14, 2005 on expiry of his term. Prior to this Shri Sharma was Vice Chairman, AERB from January 1, 2003 till his superannuation on July 31, 2004.

A Graduate in Chemical Engineering from the Banaras Hindu University, Shri Sharma has earlier served BARC in different capacities from 1963 onwards. As Director, Reactor Group, he had the responsibility for operation and utilization of three research reactors APSARA, CIRUS and DHRUVA, at Trombay. He was also responsible for carrying out extensive refurbishing of CIRUS, after which this old facility has been brought back into operation.

Shri Sharma has made invaluable contributions in several senior level committees of AERB earlier. He was the Chairman of Safety Review Committee for Operating Plants (SARCOP), which is the Apex Committee for reviewing safety of all operating plants of DAE. He is the Vice-chairman of AERB's Advisory Committee on Nuclear Safety which advises AERB on generic matters of nuclear safety and which carried out the review of a large number of safety documents. As Vice-Chairman of the Advisory Committee for Project Safety Review of Light Water Reactors, he is

actively involved in the safety review of design of Kudankulam reactors.

He has carried out several assignments of the International Atomic Energy Agency (IAEA) by way of participating in Training Courses and Co-ordinated Research Programmes and developing safety documents for Research Reactors and Nuclear Power Plants. He was a member of IAEA's Nuclear Safety Standards Committee (NUSSC) from January 2002 to mid-2003. Presently he is a member of the IAEA's Commission on Safety Standards (CSS) and the International Nuclear Safety Group (INSAG).

India Ratifies Convention On Nuclear Safety (NUCNET- The World's Nuclear News Agency- 1 April 2005/ News N°63/05/B)

The Indian government has decided to ratify the Convention on Nuclear Safety and submitted the ratification documents to the International Atomic Energy Agency (IAEA) on 31st March 2005.

A statement issued on the same day by the Ministry of External Affairs (MEA) said India was "fully conscious of the responsibilities arising from the possession of advanced and comprehensive capabilities in the entire gamut of nuclear fuel cycle operations"

The MEA said India was ratifying the convention that was adopted in Vienna in June 1994 and which entered into force in October 1996. The statement added: "Nuclear power, as a safe and secure energy source, is an indispensable component for meeting the development needs of a large and growing economy like India. In exploring its full potential for peaceful purposes to which India is committed, the

importance of International cooperation including in the field of safety-related technologies cannot but be over-emphasised".

Press Releases:

Uranium Piece Does Not Pose any Security Threat or Helath Hazard (February 5, 2005)

This is with reference to the news item titled "2 held with bomb-ready uranium" that has appeared in a section of the press on February 5, 2005. In this connection, AERB would like to clarify the situation.

Taking note of the media report about the recovery of a uranium bar that appeared in a Varanasi newspaper in mid-December, AERB contacted the Senior Superintendent of Police, Bareilly for details of the case. He was also requested to send the piece to Bhabha Atomic Research Centre (BARC) for testing. The report of the analysis carried out by BARC has confirmed that the piece is of depleted uranium. This material contains very low concentration of fissile uranium (about 0.21% of Uranium-235) and cannot be used for producing a bomb. As such the piece does not pose any security threat.

The piece also does not pose any significant radiation/health hazard as the radiation dose on the piece is negligible.

Such pieces of depleted uranium, being a heavy material, are generally used as shielding material in imported industrial radiography cameras, radiotherapy units used in hospitals or as counterweight in aircraft. There have been instances in the past when such pieces have been found in scrap yards.

The piece is now in the custody of AERB.

NEWS

USNRC Delegation Visits Atomic Energy Regulatory Board of India (February 13, 2005)

A five member delegation of the United States Nuclear Regulatory Commission (USNRC) led by Commissioner Jeffrey S. Merrifield visited the Indian Atomic Energy Regulatory Board (AERB) during 7 to 11 February, 2005 under the on-going nuclear safety co-operation between the two regulatory authorities. Extensive discussion in the form of a workshop were held during this visit on safety and regulatory matters related to the Nuclear Power Plants. The technical workshop was inaugurated by Commissioner Merrifield.

The nuclear safety co-operation was resumed in February 2003 when a USNRC delegation led by the then NRC Chairman Dr. Richard A. Meserve visited India in February 2003. During the 2003/2004 period, four meetings, two in India and two in the US were held between the

experts of the two regulatory bodies. The present workshop is the fifth discussion in the series where the topics of certification process and safety criteria for New Reactor Designs, Seismic Issues and revised requirements of Emergency Core Cooling Systems in nuclear power plants were discussed. In view of the recent tsunami event in India the two sides also discussed regulatory requirements related to tsunami and flooding hazard at nuclear plant sites. The Indian side also shared their experience of construction and commissioning of new reactors.

The discussions were found to be extremely useful by both sides and provided deeper insights into the regulatory process in the two countries. The US at present has 103 operating nuclear power reactors while India has 14 nuclear power plants in operation and 9 under construction.

The USNRC delegation visited the

Dhruva reactor and some of the engineering R&D facilities at BARC and the Tarapur site where 2 Boiling Water Reactor units of US design are operational and 2 units of 540 MWe each of Pressurised Heavy Water Reactors (PHWR) units of indigenous design are under construction. Commissioner Merrifield also visited the Kota site where 4 PHWR units are operating and 2 are under construction.

The two sides also discussed the possibility of expanding the scope of the ongoing co-operation by including additional topics. The USNRC has offered to host one or two of AERB staff to provide exposure to the US regulatory process. As part of continuing co-operation programme, three more meetings during 2005-2006 are planned. The next meeting is scheduled to take place during August-September, 2005 in the US.



Meetings of AERB Officials and delegates of USNRC at Niyamak Bhavan, Anushaktinagar, Mumbai from February 7 to 11, 2005



Shri S.K. Sharma, Chairman, AERB (at right) welcoming Shri Jeffrey Merrifield, Commissioner, USNRC on Feb.7, 2005

Workshop on Information Exchange on Nuclear Safety Between Rostekhnadzor of Russian Federation and Atomic Energy Regulatory Board (March 2, 2005)

A Workshop on Information Exchange on Nuclear Safety between Rostekhnadzor, the Regulatory Body of Russian Federation and Atomic Energy Regulatory Board (AERB) was held during February 21-24, 2005 at Mumbai. This was the first workshop organised under the Agreement for co-operation in the field of nuclear safety, between the two regulatory bodies,

i.e. AERB and Rostekhnadzor (earlier known as Gosatomnadzor). A ten member delegation from the Russian Federation led by Mr. A. Khamaza, Head of



Meeting of AERB Officials and Russian delegates at Niyamak Bhavan, Anushaktinagar, Mumbai from February 21 to 24, 2005

NEWS

the International Relations of Rostekhnadzor visited AERB for this Workshop. The topics chosen for the technical presentations were related to the Kudankulam Nuclear Power Project which comprises of two VVER-1000 reactors of Russian Design that are presently under construction at Kudankulam in the State of Tamil Nadu.

A large number of technical presentations were made by the members of Russian delegation and the Indian team on the topics of design safety review, licensing process, aspects related to construction, commissioning and operation experience of the VVER type reactors. The presentations were followed by extensive discussions and

were found to be extremely useful to both the sides. After the Workshop the Russian delegation visited the Kudankulam project site.

Inauguration of Environmental Chemistry Laboratory at SRI:

An Environmental Chemistry Laboratory (ECL) has been set up at Safety Research Institute (SRI). Shri S.K. Sharma, Chairman, AERB formally inaugurated the Environmental Chemistry Laboratory on March 21, 2005. On the occasion Shri S.K. Chande, Vice Chairman, AERB released a brochure highlighting the activities at SRI pertaining to Environmental Safety Studies.

Authorisations issued by AERB:

1. Authorisation for increasing the beam energy of Indus-1 Booster Synchrotron from 450 MeV to 700 MeV was issued to Centre for Advanced Technology, Indore by Chairman, SARCOP on February 28, 2005.
2. Authorisation for First Criticality of Tarapur Atomic Power Project Unit-4 on March 3, 2005.
3. Authorisation for Operation of Banduhurang Open Cast Uranium Mine of Uranium Corporation of India Ltd. on March 23, 2005. ●

AERB Industrial Safety Awards (March 4, 2005)

The annual Industrial Safety Awards function of Atomic Energy Regulatory Board (AERB) was held on March 4, 2005. Shri S.K. Mukherjee, Executive Director (Safety, Health & Environment), HPCL presented the Safety Awards for 2004 to Narora Atomic Power Station, Heavy Water Plant, Tuticorin, Indian Rare Earths Ltd., Manavalakurichi and Kudankulam Power Project for attaining high levels of Industrial safety.



Shri S.K. Sharma, Chairman, AERB (at the right) releasing the compilation of Industrial Safety Statistics for DAE Units, with Shri P.K. Ghosh, Director, IPSD, AERB and Shri S.K. Mukherjee, Executive Director (SH&E), HPCL.

On this occasion, Shri S.K. Sharma, Chairman, AERB released a compilation entitled "Industrial Safety Statistics of the Department of Atomic Energy (DAE) Units for the year 2004". The compilation contains data on the injury statistics amongst different units of DAE. This data is analysed and compared with data from units outside DAE. It is seen that Industrial Safety performance of DAE Units is substantially superior compared to other similar industries in the country and comparable to international standards. ●



(From the left) Shri P.K. Khare, Safety Officer and Shri S.K. Agarwal, Project Director from Kudankulam Power Project receiving the Safety Award Shield from Shri S.K. Mukherjee, Executive Director (SH&E), HPCL.

AERB SAFETY REVIEW OF PLANTS/PROJECTS

Safety Review During Commissioning of TAAP-4

R.I. Gujrati, Director, Nuclear Projects Safety Division, AERB

Construction of Tarapur Atomic Power Project - 3 & 4 (TAPP-3&4) was started in March 2000. In-depth design safety review was carried out for the project and the issues, which had emanated during the review, were satisfactorily resolved prior to the start of respective commissioning activities. Construction activities for TAPP-3 are in progress and the Unit is expected to attain criticality in the 1st quarter of year 2006. Construction of TAPP-4 has been completed and commissioning activities are in progress, the Unit-4 attained first criticality on March 6, 2005.

Safety assessment during commissioning phase requires close co-ordination amongst project site, NPCIL design office and various safety, advisory committees, specialists groups and divisions of AERB. Nuclear Project Safety Division of AERB is the responsible agency for conduct of safety review of nuclear power project from inception of the project till the authorization for continuous operation is granted.

Review Methodology during Commissioning:

In line with the requirements specified in AERB Safety Guide on "Consenting Process for Nuclear Power Plants and Research Reactors, AERB/SG/G-1", the regulatory review and authorizations during Commissioning Phase is carried out in three Phases: A, B and C. In the Phase-A commissioning, pre-requisites are completed, fuel is loaded, heavy water is charged and then the reactor systems are commissioned. Thereafter, reactor is made critical with power limited to less than 0.1% full power (FP). In phase-B, various reactor physics experiments are carried out to measure the reactivity worths of reactor control and shutdown devices to verify that these are as per the design estimates. In phase-C, reactor power is raised beyond 0.1% FP in appropriate steps, the Turbine Generator set is commissioned and the Unit is synchronized to supply electric power to the grid.

While granting various authorization, AERB ensures that: safety significant tests/activities are identified; commissioning procedures for such tests are prepared, commissioning tests results are confirmed to be satisfactory and data collected is comprehensive enough to get confidence about the safe operation of the systems and the plant in the next stage. AERB deputed observers at site for ensuring compliance with the regulatory requirements during conduct of some of the selected tests/activities such as Containment Tests, Emergency Core Cooling System Test, First Approach to Criticality, Phase-B Experiments, synchronization of the Unit with grid, etc.

Since, this is the first time an indigenously designed nuclear power plant of 540 MWe capacity, having many new types of design features, is under commissioning; detailed safety

assessment is being carried out during commissioning phase.

Containment Tests, PHT-HC and Light Water Commissioning Tests:

Primary Containment Proof Test & Integrated Leakage Rate Tests were completed in September 2004 and the results were found satisfactory. Authorisation for Primary Heat Transport System Hot Conditioning (PHT-HC) and Light Water Commissioning (LWC) was granted by AERB on October 14, 2004. Adherent magnetite layer formation of required thickness was formed on inner surfaces of PHT piping for corrosion protection by HC. After ensuring the test results to be satisfactory for PHT-HC, LWC including Emergency Core Cooling System, Shut-down Systems - SDS#1 & SDS#2, adjuster rods, etc; permission for draining of light water from PHT System and Moderator System was accorded.

Fuel Loading:

Thorough safety review, considering a large size of core having a new type of fuel loading pattern, was carried out from Core Physics considerations prior to fuel loading in the reactor. Important activities like Pre-Service Inspection of coolant channels, physical separation between TAPP-3 and TAPP-4, radiation zoning, etc. were completed prior to the fuel loading. The initial core has been loaded with 2888 bundles of Natural Uranium Oxide, 1364 bundles of Depleted Uranium Oxide and 844 bundles of Deeply Depleted Uranium Oxide. This pattern of fuel loading has been chosen for neutron flux flattening as also to conserve natural uranium. Fuel loading was completed on February 1, 2005.

Heavy Water flushing of moderator system and filling of Heavy Water in PHT:

The start-up neutron counters were installed in the reactor core and connected to startup instrumentation trolley prior to addition of 40 Te of heavy water in the Moderator System for flushing. Ion Chambers of reactor regulating and protection systems were source checked and connected to their respective systems. This activity was completed smoothly.

Bulk Heavy Water addition to Moderator System:

Prior to the bulk heavy water addition, the document "Technical Specifications for Operation" was approved by AERB and Licensing of Manpower for operation was completed. Adequate concentration of neutron poisons (Boron and Gadolinium) was maintained to ensure reactor sub-criticality during filling of heavy water. Authorisation was issued on February 25, 2005 for bulk heavy water addition (~290 Te) and the activity was completed on February 28, 2005.

First Approach To Criticality:

Integrated tests with Reactor Regulating System and for both Reactor Shutdown Systems, SDS-1 & SDS-2 were completed prior to First Approach to Criticality (FAC). After confirming that all the safety related prerequisites including establishment of Exclusion Zone and requisite security measures have been met and all relevant tests have been completed satisfactorily, AERB granted authorization for FAC on March 03, 2005. The Reactor Criticality was attained at 1241 hr on March 6, 2005.

Reactor Physics Experiments:

AERB issued authorization for carrying out Low Power Phase-B Physics Experiments, with reactor power limited to less than 0.1% of FP on March 19, 2005. The experiments and assessment of test results were in progress till end March 2005.

Commissioning Experience with Reactivity Devices:

Some of the important observations made with regard to reactivity control devices during review of commissioning test results are mentioned below:

SDS-1 was modified to obtain the design intended drop time. Modifications were incorporated in SDS-2 for accurate measurement of poison injection time. Liquid Zone Control (LZC) System could not be made available for operation during the FAC as for one of the 14 Zone Control Compartments (ZCC) level reading was erratic. The LZC system was therefore kept in fully drained condition. Required reactivity changes were effected by changing the adjuster rods position and first criticality was achieved smoothly. Subsequently, the level indication problem in LZC compartment was corrected. Initially, during conduct of Phase-B experiment, water levels in all the 14 ZCCs of LZC system were found dropping simultaneously and suddenly, based on generation of false signal due to malfunctioning of Reactor Regulating System (RRS). Since, such behaviour of the system could result in addition of significant positive reactivity to the reactor core, AERB had put "Hold" on reactor start-up. Causes of RRS mal-function were investigated and suitable design changes incorporated to eliminate the deficiencies prior to resumption of reactor operation and Phase-B experiments.

Authorization for continuous operation:

Raising of reactor power beyond 0.1% FP and synchronization of the unit with grid would be carried out in Phase-C commissioning. Authorization for 'Continuous Operation' will be granted after review of performance for about 100 days of high power operation of the unit.

Safety Management

Shri S.K. Mukherjee, Executive Director, Health, Safety & Environment, Hindustan Petroleum Corporation Ltd., Mumbai, Address delivered as Chief Guest at the AERB Safety Award Function held on March 4, 2005

Everybody talks about safety, but nobody is willing to put it on the same pedestal as profits. But when an accident happens and we talk about it, everybody agrees that safety should always receive the first priority at the workplace, but is soon overtaken by considerations of "profit", till the next accident occurs. We are forced to conclude that management pays lip service to safety. Why does this happen? There is something fundamentally wrong. We try to prioritize safety over other items, which can receive a higher priority. If you consider other items like ethics, trust among employees, respecting each other's views, these are not priorities, but values, which an organisation possesses or builds upon. So is a safety. If you regard safety as something which an organisation values, there is no dilemma.

At the workplace, safety means:

- Making tools & tackles and processes safer.
- Educating and training employees regarding safe work practices.
- Institutionalizing safety related policies and procedures.

But this is easily said than done. To put this into practice, the management must demonstrate to all employees what value it accords to safety. Only then a safety culture can be built. Systematic learning can help inculcate among employees all that goes to build a safety culture. I offer some suggestions for your consideration:

1. Behaviour safety: About 96% of accidents occur due to unsafe behaviour at workplace. Safe behaviour needs to be taught and practiced repeatedly to develop fluency till it becomes a habit.

2. Safety culture: To build a safety culture, employee involvement is

essential. A "bottoms up approach" rather than a "top down" approach works better. Employees should feel responsible not only for their own safety, but also of the coworkers and the organizational culture should support this.

3. Rewards & punishment: Rewards support positive behaviour while punishment decreases negative behaviour. Very often, people will act in a certain way to get a reward or avoid a punishment. The behaviour is triggered by external motivation, very often which is missing. If these external factors are not powerful enough to reinforce positive behaviour, they will depend less and less on external motivators. It is supported by research that people are more apt to develop internal motivation when external rewards and punishment are relatively small and judiciously used. Simple acts like pat on the back, dinner with the boss does volumes to motivate.

4. Improve employee participation: While presenting consequence of accidents to employees, a personal report from an injured employee becomes a more effective communication than presenting hard statistics and compensation costs. Listeners can relate to an individual's story and put themselves in the same situation. A personal account of an injury that could have been prevented by certain safety procedure becomes a powerful motivator. The challenge is to get people to open up and speak frankly about their close calls and actual injuries. They need to own up things they could have done to prevent an incident.

5. Build ownership and trust: One cannot build ownership and trust among employees with a "command and control" mindset that puts regulations at the centre of a safety process. People

are more likely to follow procedures they helped to develop and feel they are part of the process. Safe operating procedures become "the best way to do it" rather than "a policy we must obey". This encourages employees to be mindful, innovative, and self motivated, which increases ownership and trust, and in turn leads to more involvement.

6. Focus on facts and not faults: Traditional root cause of safety analysis stifles the open conversation, needed to analyse incidents and near misses. It focuses on what went wrong, and people don't want to talk about failure, especially if they suspect that the finger of blame could be pointed at them. It is also important to note that there is no single root cause of an incident. Behavioral and attitudinal factors contribute to almost every injury and "near miss". One needs to take time to find the facts and interpret them carefully before planning a safety intervention. Indiscriminate punishment is detrimental to long term participation, and it can turn individuals and an entire work culture against those doing the punishing.

7. Root cause analysis of incidents: Accidents, however simple or in series, are symptoms of a larger problem within a system. Though accidents stem generally from many casual factors, correcting the symptoms of a problem does little to prevent the possibility of a similar or more severe accident. To identify and treat the true ailment in system, it is important to report all incidents including near miss incidents, even if they appear insignificant and to analyse them for root causes for systemic correction. Root cause analysis is a methodology that identifies causal factors, including management system deficiencies, which, if corrected, would prevent recurrence of incidents. ●

AERB Safety Review...

Radiation Safety Study For PFBR Design

Gamma dose rate mapping studies due to bottled up radioactivity inside the Reactor Containment Building (RCB) of Prototype Fast

Breeder Reactor (PFBR) under postulated Core Disruptive Accident (CDA) conditions were carried out by AERB's Safety Research Institute, Kalpakkam in collaboration with Radiation Safety Division, Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam. The latest design of RCB along with Personnel Air Lock (PAL), Material Air Lock (MAL) and Emergency Air Lock (EAL) and control rooms were modeled using point kernel computer

code named as QAD-CGGP and the computations of gamma dose rates at various locations around RCB were made. Based on the dose rate at various locations computed through this study, the fuel building was identified as the most suitable area for assembling after emergency evacuation of the personnel. The study also delineated the route to be followed by the personnel working inside RCB to reach the fuel building. ●

TRAINING ACTIVITIES

Workshop on Safety and Security of Radioactive Sources:

In India, radiation sources (radioactive materials and radiation generating equipment), are widely used in industry, medical practices, research and training, agriculture and defence applications. Because of a very large number of sources used all over India, some unusual incidents such as loss or theft of radiation sources and shortcomings in their physical security are occasionally reported. The radiation sources, which are stolen or lost and are not under the regulatory control are termed as orphan radiation sources. These sources have the potential to cause radiological hazards. Internationally orphaned sources are known to have caused problems some times in the public domain.

The Radiological Safety Division, AERB organised a one day Workshop on the Physical Security and Safety of Ionizing Radiation Sources on March 18, 2005 in the Auditorium of AERB to bring about general awareness on the safety and security of radioactive materials among concerned government departments. The main objectives of the workshop were i) to provide information to the participants on multifarious application of radioactive sources ii) necessity of safety and security of radioactive sources iii) to spell out the role and responsibilities of nodal governmental organisations in handling of radiological emergencies and iv) to obtain feedback from the participants for further improving the effectiveness of existing measures for safety and security of radioactive sources.

The workshop was attended by forty-five delegates from various nodal governmental organisations such as Airport Authority of

India, Office of Director General of Civil Aviation, Port Trusts, Excise and Customs, Police, Directorate of Revenue Intelligence, Railway Police, Border Security Forces, Central Reserve Police Force, Central Industrial Security Force, Indo-Tibetan Border Police Force, experts from the Board of Radiation & Isotope Technology (BRIT) and Radiological Physics & Advisory Division (RPAD), BARC.

Shri S.P. Agarwal, Head, Radiation Safety Division, AERB briefed about of the workshop, Shri J.K. Ghosh, Chief Executive, BRIT in his Presidential address, highlighted the uses of radioactive sources for the social benefits and need for stringent measures for ensuring the safety and security of radiation sources. Shri K. Murlidhar, Secretary, Atomic Energy Commission in his keynote address explained the different types of radiation /nuclear emergencies that could occur among public, role of DAE in case of radiation emergency, emergency response system and the functioning of Crisis Management Group of DAE. Shri S.K. Sharma, Chairman, AERB, in his inaugural address emphasised the mission of AERB to ensure radiological safety and security in the applications of ionising radiation and summarised the radiation protection programme enforced by AERB. He informed that AERB has adopted the security measures recommended by IAEA and AERB will soon be formulating various security plans for the radioactive sources based on the potential hazards.

Various issues such as role and responsibilities of various governmental agencies in tackling orphan radiation sources in public domain, biological effects of radiation, action plans in case of unclaimed radioactive packages etc were discussed at length. Practical demonstration on the use of portable

radiation measuring survey instruments, effect of time-distance-shielding on radiation levels by using radioactive check sources, marking & labelling requirements for various types of transport packages were also imparted to the participants.

During the concluding panel discussion, issues such as 'requirement of installing sensitive radiation monitors at all the entry ports of the country; 'special workshop for the personnel from the Department of Customs, Airport and Port Authorities', 'Guidelines for construction of storage facilities for radioactive sources and handling accessories for radioactive packages/sources'; 'Precautions and actions to be taken in case of wrong labelling & marking of packages'; 'Immediate response actions to be initiated in case of emergencies involved in handling radioactive sources and emergency procedures' were discussed?

Seminar on "Safe Handling of Plutonium"

AERB's Safety Research Institute (SRI) and the Indian Society for Radiation Physics (Kalpakkam) organized a 2-day seminar on "Safe Handling of Plutonium" at SRI Guest House Seminar Hall during March 22-23, 2005. About 80 participants from various units of DAE, in particular from Fuel Reprocessing Facilities attended the seminar. Experts in the chosen topics served as the faculty. Dr. K.V. Subbaiah of SRI coordinated the organization of seminar as secretary of technical program committee.

AERB Colloquia:

1. Dr. Peter Ormai, Chief Engineer of Public Agency for Radioactive Waste Management (PURAM), Hungary delivered lectures on "Overview of Radioactive Waste Management Practices in Hungary with Particular Reference to Upgrading of Safety in a Near Surface Repository in Hungary" and "Regulatory Approaches in Radioactive Waste Management" on January 10 and 19, 2005 respectively.
2. Prof. S.P. Shah, Director, Advanced Center for Cement Based Materials (ACBM), USA delivered a talk on "Health Monitoring of Concrete Structures" on January 17, 2005.
3. Prof. Bal Raj Sehgal, Royal Institute of Technology, Sweden delivered a lecture on "In Vessel Coolability and Vessel Failure During a Severe Accident" on January 18, 2005. ●



Staff of Radiological Safety Division giving practical demonstration to the participants to the Workshop. From Left S/Shri G.Sahani, A.Sen, D.M. Rane, S.P.Agarwal, B.K.Singh and A.U.Sonawane

HOME PAGE

AERB Staff bids farewell to Prof. S.P. Sukhatme, Former Chairman, AERB on January 14, 2005:

A farewell function was organised by AERB staff, on January 14, 2005 to bid a fond farewell to Prof. Suhas.P.Sukhatme, Chairman, AERB who retired on completion of his term on January 14, 2005.

Professor Sukhatme was chairing the Regulatory Board since January 2000. He was Director of IIT, Mumbai prior to joining AERB. Dr. Anil Kakodkar, Chairman, Atomic Energy Commission presided over the function. Several speakers recalled the very important contributions made by Prof. Sukhatme to the effective functioning of AERB and the guidance provided by him that helped a great deal in nurturing this institution. In his response, Prof. Sukhatme, mentioned that he had found officials serving this organisation were dedicated and hardworking and the younger colleague would turn out to very good regulators with proper guidance. He expressed that he thoroughly enjoyed working in this organisation.



Shri S.K. Sharma, Chairman, AERB offering Bouquet to Dr. Shobha Sukhatme during the farewell of Prof S.P. Sukhatme (in the middle)



Shri Lakshman Valiveti presenting greeting to Prof. S.P. Sukhatme during the farewell function on behalf of AERB staff

AERB Staff Celebrates Republic Day:

On January 26, 2005, Staff of AERB celebrated the Republic Day of the India. Shri S.K. Sharma, Chairman, AERB hoisted the National flag on this occasion



Flag hoisting function in AERB at Niyamak Bhavan, Anushaktinagar

NEW APPOINTMENTS IN AERB DURING JANUARY TO MARCH 2005

| Name | Grade | Date of Joining AERB |
|--------------------------|----------|----------------------|
| Shri D.B. Nagrale | SO/D | 05-01-2005 |
| Shri Sekhar Bhattacharya | SO/E | 12-01-2005 |
| Shri G.K. Panda | SO/C | 12-01-2005 |
| Shri S.K. Sharma | Chairman | 14-01-2005 |
| Shri R.K. Chaturvedi | SO/C | 19-01-2005 |
| Shri Umesh Awasthi | SO/D | 20-01-2005 |
| Shri Ashok Hanimlal | SO/D | 24-01-2005 |
| Shri P.M. Panchpore | SO/D | 25-01-2004 |
| Shri R.A.P. Garg | SO/F | 27-01-2005 |
| Shri Alok Pandey | SO/C | 27-01-2005 |
| Smt. Kadambini Deve | SO/C | 04-02-2005 |
| Shri Animesh Biswas | SO/E | 08-02-2005 |
| Shri Animesh Pal | SO/D | 21-02-2005 |
| Shri Sourav Acharya | SO/D | 01-03-2005 |

RETIREMENTS FROM AERB DURING JANUARY TO MARCH 2005

| Name | Grade | Date of Retirement |
|---------------------|------------|--------------------|
| Prof. S.P. Sukhatme | Chairman | 14-01-2005 |
| Shri P. Hajra | Head, SADD | 28-02-2005 |