Hot Commissioning of PARAS FOODS

Pakistan Radiation Services (PARAS), a project of ATCOP, a commercial entity of Pakistan Atomic Energy Commission, has commissioned the PARAS FOODS Plant meant to irradiate foods, vegetables and fruits, etc. for their sterilization and shelf-life enhancement. The Hot Commissioning of this Plant has also been carried out and the Plant is ready for its designed role. The Plant has the capacity to irradiate about 60,000 tons of different food stuffs per annum. The International Plant Protection Convention (IPPC) requires the compliance to sterilization and issuance of phytosanitary certificates for the trading of horticultural items for making them fool-proof safe for human consumption. The irradiation facility at PARAS FOODS Plant will be instrumental to meeting this mandatory requirement. In addition, it will enhance the shelf-life of the products to boost exports.

PAEC organizes training camp for National Biology Talent Contest (NBTC) 2009

As part of its commitment to popularize science among youth, PAEC’s National Institute of Biotechnology and Genetic Engineering (NIBGE) is the home institution for Training/Selection of NBTC. The one week training camp of the 5th batch of NBTC was held at NIBGE from 15th December 2008. Forty-four students selected on merit from all over the country participated in the training camp.

During this course, the students were given lectures by highly qualified faculty. The camp included both theoretical and practical sessions. Mr. Al-Hasanat Rasul Mujahid, Programme Director STEM Careers Programme conducted the 1st day proceedings and introduced the spirit of launching NBTC in Pakistan. Besides covering IBO course contents, NIBGE took advantage of this opportunity by introducing to the participants the latest advancement in biology and biotechnology. During training camp, two eminent biologist of the country, Dr. Anwer Nasim, Advisor Science (COMSTEC) and Dr. Kauser Abdullah Malik, a distinguished national professor in biology also addressed the students and inspired them for a research based career in medicine and biology. During concluding ceremony, students were provided an opportunity for their feedback so that improvements can be made in future. There was a short trip to the city; the participants visited university of Agriculture Faisalabad and Punjab Medical College. These young students were highly appreciative for the research work of NIBGE, its professionalism and hospitality. On 5th day, there was formal written test for the selection of around 12-20 students for second training camp, which will be held in January 2009 at NIBGE. Finally, four students will be selected who will represent Pakistan in the 20th International Biology Olympiad 12-19 July 2009, Tsukuba, Japan.
Since the installation of Chashma Nuclear Power Plant Unit -1 (C-1), NCNDT (SES) has been actively involved in carrying out Non-destructive in-service inspection in the field of Ultrasonic Testing (UT), Radiographic Testing (RT), Eddy Current Testing (ET), Surface Methods Testing (PT & MT) and on-site Metallography. During every scheduled reactor core refueling outage, different components and pipelines of the plant are subjected to in-service inspection (ISI) to check their integrity. NCNDT (SES) offers its expertise in Conventional Island by providing quality services in all NDT techniques.

The 5th Refueling Outage of C-1 entrusted the job of ultrasonic testing and eddy current testing of the following components and pipelines to NCNDT (SES):

- Ultrasonic testing of welds of pipelines of different systems.
- Eddy current testing of high pressure (HP) heaters #5, 6 & 7.
- Eddy current testing of low pressure (LP) heater #3.
- Eddy current testing of main steam condensers #1 & 2.
- Eddy current testing of non-essential chillers #1, 2, 3 & 4.
- Eddy current testing of component cooling system (SCW) heat exchanger in Nuclear Island.

Besides carrying out Non-destructive In-service Inspection of different components and pipelines in Conventional Island of C-1, NCNDT (SES) also participated in shadow training with China Nuclear Power Operations (CNPO) during the UT, PT and ET of Class-1 & 2 components and pipelines in nuclear island. The purpose of the training was to enhance the capabilities of NCNDT (SES), keeping in view the future requirements of C-1.

Training Course on Nuclear Techniques Concludes at NIFA

A two-week national level postgraduate 25th training course on the “Use of Nuclear and Other Techniques in Food and Agricultural Research” was conducted from November 3-14, 2008, at Nuclear Institute for Food and Agriculture (NIFA), Peshawar. NIFA is one of the four agricultural establishments of Pakistan Atomic Energy Commission.

The course was designed primarily to create awareness about radiation and its peaceful uses and to provide hands-on training to scientists/researchers, teachers and postgraduate students in the application of irradiation, radioisotopes and other contemporary techniques in the field of food and agriculture.

The course was organized by Miss Samreen Shahzadi, Senior Scientist. A total of 32 trainees representing various universities and R&D organizations from all over the country participated in the course. The concluding session was held in NIFA on November 14. The Honorable Vice Chancellor of Hazara University, Mansehra, Prof. Dr. Ihsan Ali was the chief guest on the occasion.

In his welcome address, Director, NIFA, Dr. Farooq-e-Azam highlighted the salient achievements of the institute and its contribution in the food and agriculture sector of the province. Addressing the audience, the chief guest, Dr. Ihsan appreciated the quality of the course and role of NIFA in organizing such type of courses regularly for the last 25 years. At the end the chief guest distributed certificates amongst the successful candidates.

Participants of 25th Training Course with the chief guest, Prof. Dr. Ihsan Ali, Vice Chancellor, Hazara University at the concluding session.
One-day Symposium on Breast Cancer Management held at PAEC’s Cancer Hospital BINO, Bahawalpur on November 29, 2008.

Breast cancer is the leading cancer affecting Pakistani women. Early diagnosis and better management can be curative in this disease. To address this issue, one day symposium was held in BINO, Bahawalpur on 29th November, 2008. The event was chaired by Prof. Dr. Mazhar-ul-Haq Atique, Principal, Quaid-e-Azam Medical College, Bahawalpur. This educative event was attended by eminent surgeons, radiologists, gynaecologists and histopathologists, of Bahawal Victoria Hospital, Combined Military Hospital, Tehsil & District Hospitals of Bahawalpur.

Dr. Shahab Fatmi, Director BINO, Bahawalpur in his welcome address, emphasized on multi-disciplinary management of breast cancer and assured of full co-operation from BINO in this regard. The Chief Guest, Prof. Dr. Mazhar-Ul-Haq Atique, principal, QMC, Bahawalpur in his inaugural address appreciated services of BINO in diagnosis and treatment of breast cancer and for regular breast clinics and joint clinics in oncology. The first scientific session was chaired by Professor (Retd) Dr. Riaz Mehmood, ex-Professor of Pathology, Q.M.C.

An overview of breast cancer management especially breast conservation & onco-plastic breast surgery was presented by Dr. Gulzar Malik, Assistant Professor of Surgery, QMC, Bahawalpur. This was followed by a very comprehensive and informative lecture on Oncologist’s perspective in breast cancer treatment by Dr. Kaukab Jabeen, Pr. Medical Officer, BINO. She discussed various treatment modalities in breast cancer management stage in breast cancer. Dr. Shahab Fatmi, Nuclear Physician & Director, BINO, presented a very informative lecture on the role of Nuclear Medicine in the management of breast cancer. He emphasized the role of sentinel lymph-node biopsy and scintimammography, in early diagnosis and staging of breast cancer and the usefulness of PET scan in evaluating response to treatment in breast cancer.

The 2nd scientific session was chaired by Prof. Dr. Gulzar Ahmed, Prof. of Surgery, B.V. Hospital. Dr. Asim, consultant surgeon, from BVH discussed about surgeon’s expectations from the pathologist especially when going for radical procedures and breast conservation in selected breast cancer patients. He stressed upon comprehensive staging work up, in which pathologist’s input is very important. This was followed by presentation by Dr. Saif-Ur-Rehman, Sr. Medical Officer BINO, on oncologist’s expectations from pathologists in the management of breast cancer, specially tumor grade, lymph node status and hormonal status. Lastly, Prof. Riaz Mehmood gave a presentation on the role of histopathologist in diagnosis of breast cancer. He addressed various queries from surgeons and oncologists regarding histopathology reporting of breast cancer. At the end of the session, vote of thanks was delivered by Dr. Iftikhar Alam, SMO, BINO.

This symposium was very informative and interactive and helped all attending doctors in updating their knowledge about breast cancer diagnosis and management.

IPSART Mission to C-1

The Probabilistic Safety Assessment (PSA) is a mathematical analysis that quantifies potential accident risk. PSA provides in-depth studies of plant design features, maintenance activities and operational safety and identifies the sequences that dominate the risk. The Task of PSA is a regulatory requirement to ensure that risk is within acceptable limits.

In order to meet regulatory requirement and take advantage of PSA to strengthen plant safety, a group was established at C-1 Site in 2004. C-1 has completed the PSA Level-1 Task for Full Power Internal Initiating Event Models and its documentation work. An International PSA Review Team (IPSART, IAEA mission) will review C-1 PSA Level-1 Task, under the project, “Supporting and Strengthening Operational Safety Management of C-1” (PAK/9/025) during March 02-11, 2009 at C-1 Site. The IPSART mission will comprise of five members from various countries. The Mission will review the PSA Models, modeling approach and documentation for C-1. The IAEA IPSART mission is one of the major milestones for C-1 and this review will boost the confidence of C-1 PSA Team in the future developments in this area.
As part of its ongoing quality awareness program in PAEC, the Training & Consultancy Division of Directorate of Quality Assurance (DQA) organized for the first time, a “Two Day Workshop on Quality Assurance in Education” for Teachers/Trainers, at its premises on November 11th & 12th, 2008 in collaboration with Pakistan Institute of Quality Control (PIQC), Lahore. The workshop was inaugurated by Honorable Member (Administration), Maj. Gen. (R) Khalid Mushtaq.

The aim and objective of this Workshop was to share the best quality practices in Education and also to explore, analyze and synthesize the successful methodologies which have resulted in quality outcomes in education. Around 19 senior academicians from PAEC Model Schools/ Colleges, CTC, PIEAS and CHASCENT participated in the workshop. The workshop consisted of two days of highly interactive and full of learning technical sessions.

These sessions mainly focused on the quality issues of teacher, quality of curriculum, quality of exams & assessment, quality of communication, quality of student support services, quality of research, quality of text books, process based model and application of ISO 9001:2000 in education in the light of IWA-2:2003, etc.

With the conclusion of the workshop, DQA achieved the objective of continual improvement of quality in education by conducting this workshop.

Certificate Awarding Ceremony at KINPOE

Certificate awarding ceremony for the 37th batch of Post Diploma Training Program (PDTP) of KINPOE was held on December 02, 2008. Mr Waqar Murtaza Butt, Director General, KNPC was the chief guest. He awarded certificates to successful trainees.

Speaking to audience, Mr. Waqar Murtaza Butt stressed the need of trained manpower for PAEC projects. He also informed the successful trainees about the new promotion policy and career planning for PAEC staff.

It is worth mentioning here that Post Diploma Training Program has been declared as strength of KANUPP by WANO.
Countess Sonja Bernadotte, President of the Council of Nobel Laureates Meetings in Lindau (Germany) expired on 21st October 2008. She was the President of the prestigious Council which has the unique honor of holding the annual meetings of Nobel Laureates for the past 58 years. In these meetings, 20-25 Nobel Prize Winners in the fields of Physics, Chemistry and Medicine/Physiology interact with more than 550 bright young graduates from over 50 countries of the world. This interaction is in the form of group discussions, question/answer sessions, formal lectures as well as personal sittings. Budding scientists seek guidance for their scientific pursuits from the Nobel peers.

Thanks to the joint venture Project of Pakistan Atomic Energy Commission (PAEC) and Higher Education Commission (HEC), 8-10 bright young scientists, selected on merit from all over Pakistan, have been participating in these annual meetings for the last 6 years. During all these years, the help and support of the President late Countess Sonja Bernadotte has been a source of inspiration and encouragement for Pakistani participants. In the first ever participation of Pakistan as a group in the Lindau Meeting in 2003, she spared one hour from her very busy schedule for a personal meeting with our students. There, they discussed the education, science and culture of Pakistan. She appreciated the initiative of PAEC and HEC for providing opportunities to bright Pakistani graduates to attend such meetings. She also encouraged our students to interact and get maximum benefit from the visiting Nobel Laureates as well as fellow participants from different parts of the world.

In memory of the late Countess Sonja Bernadotte, a condolence meeting was arranged at PAEC’s Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad, which was chaired by Dr. M. Aslam, Rector PIEAS. On this occasion, Dr. N. M. Butt, Scientist Emeritus/former Chairman, Pakistan Science Foundation who is Representative of the Council for Lindau Nobel Laureates Meetings, expressed his gratitude for her services and recalled the memories of her meetings with Pakistani participants. She belonged to the Royal family and was very humble and polite. Her friendly and cooperative attitude was really inspiring for everyone.

Mr. Waqar A. Butt, Project Coordinator, Programme for Interaction of Young Pakistani Scientists with Nobel Laureates read out the condolence message, which was passed on to the bereaved family on behalf of the students and professors of PIEAS where this Project is being hosted. In this message, the services of Countess Sonja Bernadotte for the high level of scientific gathering in the world were appreciated.
Industry honoured by CERN

The LHC inauguration provided an opportunity for the CERN to thank all those who have contributed to transforming this technology dream into reality. CERN involved its Industrial partners in the LHC inauguration by organizing a special industry prize-giving day on 20th October 2008.

PAEC’s HMC-3 was invited to attend this event being a recipient of “ATLAS Supplier Award” in January 2006, as HMC-3 had contributed and supplied various Support Elements and Assembly Tools to ATLAS.

On this occasion, the welcome message from CERN’s Director General, Robert Ayarm retraced the history of industry’s involvement in the LHC project and reference was made to the awards given to the firms. “The LHC was challenge that the scientific community couldn’t face alone. And industry was crucial in bringing CMS to life too”, he remarked.

Appointment of new DG, K-1 and re-employment of former DG, K-1

Consequent upon retirement of Mr. Waqar Murtaza Butt, Director General (K-1) on December 31, 2008, Mr. Jawed Iqbal, Deputy Plant Manager (Production), K-1 has been appointed as Director General, K-1. Mr. Jawed Iqbal has assumed this charge on 1st January 2009. Keeping in view his vast knowledge and versatile experience, Mr. Waqar Murtaza Butt, Chief Engineer has been re-employed as Director General (Nuclear Power Generation), Chairman’s Sectt.

Honour for NIBGE

Mr. Muhammad Azeem Saeed, M.Phil student of Quaid-i-Azam University, NIBGE Campus, under the supervision of Dr. Abdul Haq, Principal Scientist, Health Biotechnology Division, NIBGE attended 2nd Iranian International Student Conference of Biotechnology from November 15-17, 2008 in University of Tehran. Mr. Saeed presented his oral presentation which was rated as the best article. He also won the Gold Medal from the above Biotechnology Student Scientific Society, University of Tehran.

MINAR reaffirms its commitment to fight Breast Cancer

During October, the Breast Cancer Prevention Month, MINAR reaffirmed its commitment to fight breast cancer. MINAR presently has one of the most powerful breast cancer prevention programmes with daily walk-in mammography, weekly joint breast clinics with surgeons and pathologists and a fully coordinated surgical/pathological/radiochemotherapy collaborative infrastructure. MINAR is one of the few centres collaborating with the Royal Free Hospital, London for validation of its sentinel node scanning data. MINAR is also collaborating with other PAEC establishments to provide free breast screening to the family members of their workers.

MINAR has recently started a retrospective data analysis for mammography film repeats as part of its quality assurance programme to ensure that practices are in line with international best standards.

Ph.D. Degree for PAEC Engineer

Dr. Muhammad Umar Principal Engineer has been awarded Ph.D. Degree by Department of Chemical Engineering, University of Engineering and Technology Lahore for his research work on fuel oxygenate synthesis via reactive distillation. The title of his thesis was “Optimization of Packed Reactive Distillation Column for Ethyl Tert-Butyl Ether Synthesis”. This research was carried out at Loughborough University of UK and UET Lahore under supervision of Prof. Dr. A.R. Saleemi. Funding for this research work was provided by HEC under indigenous Ph.D. program for MS leading to Ph.D. Mr. Umar completed MS Chemical Engineering in 2004 securing first position in the department. His research work has been published in high impact factor international journals. He has also presented his work in international conferences. In total, he has published 6 papers and two research papers are under review in prominent chemical engineering journals.

Ph.D. Degree for PAEC Scientist

Imtiaz Ahmed Khan, Principal Scientist at Agriculture Biotechnology Division, Nuclear Institute of Agriculture (NIA), Tando Jam has been declared successful for the award of Ph.D. degree by the University of Sindh, Jamshoro on December 2, 2008. He accomplished his work in the field of biotechnology. His topic of research was “Generic Variability in Sugarcane Induced Through Mutation Breeding and Biotechnological Techniques”. During his Ph.D., Mr. Imtiaz Ahmed published six research articles in reputed journals and presented his research work in the 4th International Symposium on Genetic Engineering and Biotechnology organized by University of Karachi, 4-8 December 2005 and in Fourth National Symposium on Biotechnology held at Sindh University, Jamshoro, November 4-8, 2007.

PAS Gold Medal for PAEC Scientist

Mr. Aziz Ahmed Qureshi, Advisor to Member (FC) has been awarded Gold Medal and cash award for the year 2008 by Pakistan Academy of Sciences (PAS). He is already a winner of three gold medals by University of Punjab Geological Society and Pakistan Atomic Energy Commission (PAEC).

Mr. Qureshi joined PAEC in 1975 and was engaged in fieldwork for uranium exploration. During fieldwork, he succeeded in locating an area of high priority where a Uranium Deposit was discovered later.

In 1986, he joined PINSTECH to take up the research work as Head of Nuclear Geology Group. During that period, he worked on uranium exploration, earthquake prediction, rock dating, and study of carbonatites of Pakistan.

Mr. Qureshi is author/co-author of 100 publications/reports and has presented 20 papers in various conferences. Pakistan Council for Science and Technology (PCST) declared Mr. Qureshi as the 2nd best Geoscientist of Pakistan in 2004.
The unplanned dumping of untreated wastes directly onto soil, into ponds and water courses is causing serious problem of soil and water contamination. To-date, there exist numerous contaminated soil spots in and around heavily industrialized and populated cities of Pakistan and the need for their on-site clean-up is huge and urgent in view of the safety of soil and potable groundwater environment.

For example, soil and water contamination with Cr is being caused by industries like leather tanneries, electroplating industries, dyes and pigments manufacturing industries, textile industries, etc., that discharge untreated sewage containing chromium along with other toxic metals into unlined drains and ponds around industrial sites. Waste soils around tannery industries contain chromium (Cr-III, Cr-VI oxidation states) both in aqueous form (dissolved in pore water) and adsorbed form (trapped by soil/clayey fractions). Cr(VI) is more toxic and carcinogenic. Cr(VI) also causes ulcers, skin rashes, respiratory problems, kidneys and liver damages.

Among several waste remediation approaches, the electrokinetic remediation (EKR) technology has fast emerged as a reliable, powerful and highly prominent candidate for effective in-situ removal of soluble and leachable toxic species of metals, radionuclides and organics from contaminated soil and water environment. The goal of EKR Technology is to effect the in-situ migration of subsurface contaminants in an imposed electric field via electroosmosis, electromigration, and/or electrophoresis. The process may be enhanced through use of specific reagents (electrolytes, purging solutions, ion barriers) to increase the removal rates of contaminant in the waste medium.

The EKR approach is now being commercially used in many advanced industrialized states for on-site remediation of waste soil and associated water environment. However, such a technology has never been developed and used in Pakistan for on-site clean-up of waste soils. In these perspectives, researchers at Ecology Research Laboratory of the Pakistan Institute of Nuclear Science & Technology (PINSTECH) have developed bench-scale facilities to demonstrate the feasibility of electrokinetic remediation (EKR) of pollutants (toxic/trace metals, organics) from waste soils. Trial experiments have been successfully performed for electrokinetic removal of aqueous phase chromium in soil collected from a selected spot around Islamabad. A recovery of 44.58% Cr(VI) during a period of 24 hours of electro-remediation was established through mass balance calculations.

Nevertheless, waste soils can be effectively remedied down to permissible limits of a pollutant in a period of few weeks to several months depending upon the type of contaminant(s) in the soil as well as physiochemical, hydraulic and mineralogical characteristics of the soil. Presently, a doctoral research fellow of ‘University of The Punjab’ is working at the Ecology Research Laboratory-PINSTECH to improve the EKR technique w.r.t. enhancement in remedial efficiency of Cr and other toxic metals of concern in waste soils collected from selected industrial zones. It is envisaged that the development of cost effective in-situ EKR Technology will be very useful to decontaminate waste soil and water environment in and around industrial zones in Pakistan.

Visits abroad of Members

- Dr. Ansar Parvez, Member (Nuclear Power Projects), PAEC, Islamabad participated in the Fourteenth Annual Energy Conference entitled ‘Nuclear Energy in the Gulf’ held at Abu Dhabi, UAE from 24-26 November 2008.

- Dr. Shoaib Ahmed, Member (Physical Sciences), PAEC participated in the Soft Inauguration of SESAME in Amman, Jordan from 03-04 November, 2008. SESAME is a UNESCO sponsored Synchrotron Radiation Laboratory of which Pakistan is a founding Member.

Assignments of PAEC Experts Abroad

- Mr. Ahmad Mumtaz, Senior Director, Applied Systems Analysis Division, PAEC, Islamabad undertook assignment as an IAEA Expert in Khartoum (Sudan) and Cape Town (South Africa) from 15-21 November, 2008 under Project-Strengthening Planning Capabilities for Sustainable Energy Development.

- Mr. Hamid Mahmood, Senior Director (DNPES) carried out assignment as an IAEA Expert for the IAEA Regional Workshop on Site Selection and Evaluation at IAEA H.Q., Vienna (Austria) from 24-28 November, 2008.

Visits of Foreigners to Pakistan

- Prof. Samar Hasnain, Professor of Molecular Biophysics, University of Liverpool, United Kingdom visited National Institute for Biotechnology & Genetic Engineering (NIBGE), Faisalabad from 10-11 November, 2008 to deliver Special Seminar on Structural Biology: An Essential Element of Modern Science.

- Prof. Boris Yashev (Bulgarian National), Hohenheim University, Germany visited Nuclear Institute for Agriculture (NIA), Tandojam on 18 November, 2008 and Nuclear Institute for Agriculture & Biology (NIAB), Faisalabad on 19 November, 2008 to discuss Collaborative Project.

Appointment with IAEA

- Mr. Mohammad Munim Awais, Chief Engineer, PAEC has been appointed as Programme Management Officer in the Asia and the Pacific Section, Department of Technical Cooperation, IAEA, Vienna (Austria) for a period of two years from 17 November 2008.

Scientific Visit to China

- The three geo-scientists Mr. Iftikhar Ali, DCS, Mr. Muhammad Aslam, DCS & Mr. M. Akram Ansari, DCS of Atomic Energy Minerals Centre (AEMC), Lahore have carried out Scientific Visit at China from 27th October to 7th November 2008 in connection with IAEA Technical Cooperation Programme (TC-3/10 project). The visit was conducted by Beijing Research Institute of
PAEC's Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad organized the 36th Annual Postgraduate Training Course on ‘Use of Nuclear and Other Advanced Techniques in Agricultural and Biological Research’ from 10 to 21 November 2008. The objective of the course was to acquaint young scientists and students with the modern techniques and recent developments in the field of agricultural and biological research. The course was attended by 25 participants representing R & D organizations and universities from all over the country. This course has been a regular annual activity since inception of NIAB (1972) and more than 700 researchers and academicians have been trained so far.

The course was inaugurated by Dr. Abdul Rashid, Member (Biosciences), PAEC. Speaking on the occasion, worthy Member appreciated the research achievements and efforts of NIAB for dissemination of knowledge and training of scientific manpower. He commended the efforts of course organizer, Dr. Shahnaz A. Khanum, DCS and patronage of authorities for regularly organizing this training course. Earlier, Director NIAB, Syed Anwar Shah, highlighted the achievements of the institute. He mentioned that 26 crop varieties evolved by NIAB are grown on vast area in the country. The additional income accruing from these varieties runs into billions of rupees and farmers were also benefiting from other technologies developed by the institute. In the concluding session, Dr. Farooq-e-Azam, Director, NIFA, Peshawar was the Chief Guest. Dr. Azam awarded certificates to the participants and applauded NIAB for its scientific work and contribution in human resource development.

Annual Radiological Emergency Exercise at KANUPP

An annual radiological emergency exercise was performed at Karachi Nuclear Power Complex on Friday December 26, 2008. The drill was executed to fulfill one of the requirements of Pakistan Nuclear Regulatory Authority (PNRA), which requires the licensee to carry out a large scale drill in collaboration with the public authorities to demonstrate the emergency preparedness at station. The drill was witnessed by the inspectors of Pakistan Nuclear Regulatory Authority (PNRA) and by local observers from Quality Assurance, Nuclear Safety & Licensing, Operation and Health Physics Divisions.

The drill was performed as per KANUPP on-site Radiological Emergency Plan and KANUPP off-site Radiological Emergency Plan. KANUPP Emergency Response Organization was activated along with the emergency facilities available at the station. The drill was started at 1005 Hrs with the declaration of “Standby Emergency”. The “Site Emergency” was declared at 1015 Hrs and the “General Emergency” was declared at 1050 Hrs. Emergency actions such as emergency announcements for the site notification, notification of emergency to off-site authorities, rescue operation, emergency treatment, first aid, shifting of the injured persons to the hospital, assembly of the station personnel at the designated assembly areas, on-site/off-site survey and sampling, assessment of population doses using a software known as Sectorem-2, control of public transport outside KANUPP boundaries, fire fighting by the fire crew using the local fire tender were taken.

After bringing the plant conditions under control, the Site Emergency was terminated at 1105 Hrs. Later, after receiving the survey results at the Command Point, the General Emergency was terminated at 1125 Hrs.