



# PakAtom

Newsletter of the Pakistan Atomic Energy Commission

January-February, 2009

## ISO Certification for Engineering Support Departments of KANUPP

Karachi Nuclear Power Plant (KANUPP) is being operated after completing its nominal design life of 30 years. This was possible with the indigenous efforts of the operators for the major safety improvements to meet the national and international safety requirements for Nuclear Power Plants. The operation and safety of KANUPP is monitored/reviewed by IAEA and WANO Technical Support Missions on regular basis.

As a part of self-reliance programme, different technical support facilities were established at KANUPP to fill the gap caused by the withdrawal of vendor support for plant immediately after its commercial operation in mid 70's. The expertise and facilities so developed not only ensured safe and continued operation of plant during design life and beyond, these services are also being extended to other establishments of PAEC and local industrial sector.

To move further towards the possibility of extending these specified services to the organizations outside KANUPP on commercial basis, KANUPP planned ISO-9001 certification for its technical support departments. This will also help to further improve the working/quality of these departments and the programme of the plant itself. As a first step, "Control and Instrumentation Application Lab" (CIAL) of KANUPP achieved ISO certification in year 2003.

For the ISO certification of the two other major technical support departments namely "Design and Development (for mechanical and process systems) and "Computer Department" (for CC&I), KANUPP signed MoU with Directorate of Quality Assurance (DQA), PAEC. These two departments have played vital role in the O/M of plant, safety upgrade and life extension of KANUPP. The target of ISO certification was successfully achieved in December 2008. The accreditation was done by Bureau Veritas, UK, the world leader in ISO certification.

ISO-9001 certificates were awarded to "Design and Development" and "Computer Development" departments of KANUPP on February 13, 2009 at KANUPP by Mr. Zia-ul-Hasan Siddiqui, Member (NPG), PAEC.

KANUPP now has started the process of ISO certification of its training institute "KINPOE" with the ultimate goal for the ISO certification of the plant i.e. KANUPP. ■

## PAEC-CSIRO Workshop on "Vegetation-based Management of Salt-affected Lands"

PAEC's Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad, organized a workshop on "Vegetation-based Management of Salt-affected Lands Modeling Concepts" on 26-27 February 2009 at NIAB, Faisalabad in collaboration with CSIRO, (Commonwealth Scientific and Industrial Research Organization), Forestry Division, Canberra (Australia) and partner agencies in Pakistan as part of an AusAID-funded project.

The objective of the workshop was to identify tree species having economic worth, which are suitable for growing in saline wastelands and salinity management through tree plantation using models to predict growth, water use and hydrological impacts.

The workshop was conducted by three senior Australian scientists, Dr. Nico Marcar, Dr. Thivianathan Swaminathan and Dr. Jehangir F. Punthakey who visited Pakistan from 24-28 February 2009. About 30 participants from 8 different research institutions, universities and NGOs attended the workshop. The collaboration of NIAB with CSIRO spans over about 20 years under different projects funded by Australian Centre for International Agricultural Research (ACIAR); the present activity was sponsored by AusAID through Public Sector Linkage Programme.

It may be recalled that PAEC's NIAB has played a pivotal role in the establishment and dissemination of biosaline technology, which it is sharing with nine IAEA member countries under the auspices of IAEA.



*Deliberations between visiting scientists and their local counterparts during the PAEC-CSIRO workshop on "Vegetation-based Management of Salt-affected Lands" at NIAB, Faisalabad.* ■

## INMOL Starting Mobile Breast Care Facility for Lahore and Adjoining Areas

PAEC's Institute of Nuclear Medicine and Oncology (INMOL), Lahore is introducing breast cancer awareness and screening program for Lahore and its surrounding Basic and District Health Units in collaboration with M/s Pink Ribbon Organization (an NGO) working for increasing breast cancer awareness. For this purpose, a mobile breast care unit has been provided by PAEC.

The memorandum of understanding (MoU) signing ceremony was held at INMOL between Dr. Syed Waqar Hyder, Director, INMOL and Ms. Sarwar Nigar, Project Manager, M/s Pink Ribbon, countersigned by Dr. Abdul Rashid, Member (Biosciences), PAEC on the World Cancer Day, i.e. 4<sup>th</sup> February 2009. This facility is first of its kind in Pakistan, which will be effectively utilized in collaboration with the NGO, initially for a period of two years. The facility may subsequently be extended to other parts of Punjab. Both the organizations will work jointly for enhancing cancer awareness by providing the screening facility for the benefit of cancer patients



*Dr. Abdul Rashid, Member (Biosciences), PAEC countersigning the MoU.*

free of cost, starting in March 2009.

INMOL will provide mobile breast care unit and highly professional technical and operative staff to carry out mammogram screening. M/s Pink Ribbon Organization will be responsible for marketing, publicity for public

awareness and for organizing operation plan. In addition, the NGO will manage entire running cost of the project. It is hoped that a large population will get benefits from the fight against this fatal disease, i.e. breast cancer, through this cooperative program under the auspices of PAEC. ■

## MINAR holds 3<sup>rd</sup> PAEC Mammography Workshop

PAEC's Multan Institute of Nuclear Medicine and Radiotherapy (MINAR) held the "3<sup>rd</sup> PAEC Mammography Workshop; Establishing and Strengthening QA and Film Reading". This was a two-day programme with intensive hands-on experience. The workshop was held on the 20<sup>th</sup> and 21<sup>st</sup> of February 2009.

The workshop aimed at educating physicians and technologists and was unique in that there was no registration fee. In addition to that, free boarding and all meals were also provided. All this was managed locally and at no cost to the PAEC. Participants came from seven PAEC Nuclear Medicine Centres and were trained on QA equipment and protocols and spent one full day on film reading and reporting.

MINAR has had the distinction of providing all the national training on mammography techniques to PAEC physicians and technologists through



*Participants of the workshop with Dr. Durr-e-Sabih, Director, MINAR, Multan.*

its workshops. MINAR is also providing free QA services to other nuclear medicine centres and has offered to set up remote reporting facilities for other centres.

With this workshop, MINAR reaffirms its vision of becoming the primary resource centre for breast imaging within the PAEC. ■

# Chashma Nuclear Power Plant Unit-1 Successfully Completes 5<sup>th</sup> Refueling Outage

C-1 was taken offline at 0800 hrs on August 03, 2008 for its 5<sup>th</sup> Refueling Outage since it began commercial operation in 2000. The reactor was made critical at 0950 hrs on 21<sup>st</sup> January 2009; formal grid connection was made at 1158 hrs on January 23, 2009 and achieved full power at 1349 hrs on 29<sup>th</sup> January 2009. The outage duration was 173 days, 3 hrs and 58 minutes of which 120 days was exclusively dedicated for a significant design modification on RPV Irradiation Surveillance Capsule Assemblies and its Supporting Structure.

During refueling outages, scheduled about every 14 months, C-1 replaces one-third of the reactor's fuel while two third used fuel is reshuffled. Workers perform scheduled preventive and corrective maintenance work on a variety of plant systems and equipment that cannot be done when the plant is operating, as a proactive measure to ensure continued equipment safety and reliability.

The current outage was particularly significant for C-1 because a number of major maintenance jobs were carried out by its own staff indigenously. During this outage, C-1 made efforts for better utilization of its own resources to gradually reduce dependence on foreign contractors. Coordinated efforts of Operation, Maintenance, Engineering Departments and other allied divisions (Safety & Health Physics, QA&AD, CHASCENT etc.) of C-1 made this outage a success.

Indigenization process at C-1 resulted in foreign exchange savings of US\$ 6.02 million and other savings of Rs. 15.43 million during RFO-5.

A significant milestone, achieved by C-1, was the replacement of third seal of Reactor Coolant Pump-A/overhauling of Circulating Cooling Water Pump # 4 and completion of 544 maintenance jobs declared as pre-outage /non-RFO jobs before the start of refueling outage resulting in reduction of outage duration.



*Reactor Pressure Vessel (RPV) Head lifting.*

A total of 3250 jobs related to maintenance, inspections, tests and design modifications were completed during this outage. Nearly 80% of the outage jobs were completed by C-1. One of the major achievements made was the fuel unloading and loading operation, which was performed safely and successfully by C-1 personnel on their own for the first time. This critical job includes Reactor Pressure Vessel (RPV) Head lifting, removal of Upper and Lower Reactor internals, Defueling, Refueling, placement of Lower and Upper Reactor internals and placement of RPV Head.

The outage lasted for 173.17 days. These included 120 days exclusively for completion of a significant design modification on Irradiation Surveillance Capsules on reactor internals, which will result in safe and reliable plant operation during the next operating cycle. Major jobs included maintenance of major Pumps, Diesel Generators, Nuclear/Conventional Island Valves, Main Generator, Control Rod Drive Mechanism, installation/commissioning of Fuel Assembly Reconstitution Equipment (FARE), 220kV/132kV line modification in C-1 to

accommodate C-2 GIS system and replacement of faulty Resistance Temperature Detectors. ISI jobs included sludge lancing of Steam Generators and PT of RPV safe end welds.

It is important to mention that a chronic problem of increased vibrations on Centrifugal Charging Pump-A, taken up by vendor experts, could not be solved during the outage despite working for 15 days. After their departure, C-1 personnel decided to take up the problem themselves and rectified the problem successfully.

Lessons learned during the outage are identified and are tracked to provide for continuous improvement of future outages.

The performance of C-1 has been improving continuously owing to untiring efforts of plant personnel and continuous support from PAEC HQs. Recent outage performance at C-1 is a foundation of success on which we can build a strong future at the plant. It clearly illustrates our determination towards sustained improved performance and indigenization program at C-1. ■

# PAEC's LINAR, Larkana organizes Cancer Awareness Programme for health professionals, January 31, 2009 at Jacobabad

Cancer is one of the devastating diseases. The early diagnosis and prompt management results in long survival and better prognosis. The first person, where, the patient reporting with nonspecific symptoms is the doctor, therefore, this programme was especially arranged for health professionals. This awareness programme regarding cancer awareness and the facilities offered by PAEC's Larkana Institute of Nuclear Medicine & Radiotherapy (LINAR), Larkana for the diagnosis and management of various malignancies and other benign diseases was attended by medical specialists belonging to different fields including surgeons, physicians, cardiologists, radiologists and general practitioners of Jacobabad and adjoining areas.

Dr. Khan Mohammad, Director, LINAR, Larkana, in his welcome address, emphasized on the early diagnosis of this lethal disease for better management, increased quality of life & disease free survival. He assured all health professionals for the full co-operation from LINAR, Larkana in this regard. Dr. Sadiq Hussain, Nuclear Physician, LINAR, presented the services & facilities offered by the Nuclear Medicine Department in the diagnosis of various benign & malignant diseases & management options of various thyroid related disorders.

Dr. Akhtar Ali, M.O. LINAR, in his presentation, discussed signs & symptoms of various cancers &

screening procedures for early detection of this disease. Dr. Saeed Ahmed, Nuclear Physician, LINAR, presented a very comprehensive & informative lecture on nuclear cardiology. He discussed the need of myocardial perfusion scan in our local scenario. At the end, the President of PMA, Jacobabad thanked all the doctors from LINAR and other health professionals for their huge participation and great interest and said that this awareness programme was very informative, interactive and it helped all the attending doctors in updating their knowledge about cancer diagnosis & facilities available in LINAR, Larkana.

## PWI providing Chemical and Mechanical Testing Facilities and Trained Human Resource

PAEC's Pakistan Welding Institute (PWI), SES Dte. has established state-of-the-art chemical and mechanical testing facilities at I-9 complex.

Chemical analysis equipment based on spark emission spectroscopy principle is presently under use at PWI. All metallic elements of periodic table and carbon, sulphur, phosphorous with different base materials can be detected by this equipment with the accuracy of ppm (parts per million) level.

Computer control universal tensile machine is also in use at PWI with

tensile testing capacity of 100 ton and with additional feature of furnace attachment for tensile testing at 600°C. This machine also has the facility of hardness, bend and rope testing.

All PAEC establishments can have access to use these facilities.

Pakistan Welding Institute (PWI) since its inception is also highly committed to train and provide the best possible human resource in welding and fabrication to PAEC and other national organizations. Courses at PWI range from executives to junior technicians level.

In this connection, 108 regular courses, two special courses under the PAEC training programme have been completed resulting into training and certification of thousands of technicians and engineers from various organizations of the country.

Three months Tech-I and six months Tech-IV courses were designed so that not only the theoretical aspects but practical requirements as per the agreed plan have also been successfully met.

After successful training at PWI all the trainees have been transferred to various PAEC centres as per their requirements.

## Emergency Operating Procedures (EOPs)

Review of the safety features of KANUPP was carried out to compare them with modern CANDU safety standards and practices as part of re-licensing of plant beyond 30 years of operation. Various tasks of safety upgrades and improvements were initiated including development of

Emergency Operating Procedures (EOPs). The scope of an EOP is to provide the procedural guidance for operators to deal with accident conditions up to the point of core damage. Thus the EOPs generally provide actions for a wide spectrum of operating conditions, ranging from

abnormal operating up to accidents within the design basis of the plant.

A number of IAEA documents were used as guidelines for accomplishing this project. The task has been successfully completed indigenously by a team of KANUPP engineers coordinated by Mr. Raza Akhlaque, PE.

# 34<sup>th</sup> International Nathiagali Summer College on Physics and Contemporary Needs, Nathiagali, (22<sup>nd</sup> June - 4<sup>th</sup> July, 2009)

International Nathiagali Summer Colleges (INSC) on Physics and Contemporary Needs have been organized every year since 1976, mostly at the scenic hill resort of Nathiagali near Islamabad, Pakistan. The idea of holding these Colleges came from the distinguished Nobel Laureate, Professor Abdus Salam who emphasized the vital need of communication, as well as for transferring and sharing scientific knowledge, among the scientific community of the Third World. The primary aim of the College is to break the isolation of the scientists in the developing countries by enabling them to interact with an international faculty and colleagues from the Third World.

The college is primarily intended for scientists actively engaged in teaching and research activities in developing countries. Advance graduate students from Pakistan are also encouraged to attend. About 200 scientists from developing nations benefit from this scientific discourse. During the last 33 years, about 585 eminent scientists including six Nobel Laureates as faculty from developed countries shared their knowledge and experience with more than 970 foreign and 6400 scientists from over seventy developing countries.

Pakistan Atomic Energy Commission has regularly organized this scientific activity. From the 26<sup>th</sup> College, the scientific program of the College is being jointly organized in collaboration with the National Centre for Physics, Quaid-i-Azam University, Islamabad. The regular sponsors of the College include the Abdus Salam International Centre for Theoretical Physics (ASICTP) Trieste, Italy and the US National Science Foundation.

The scientific activities of INSC aim at the broad coverage of topics at the frontiers of knowledge in Physics and allied sciences. Every year, one or two subjects of current interest and their applications for technological development, with special reference to needs of the developing world, are

highlighted. This year, college is covering the following topics.

## **ACTIVITY-I** **Energy Systems Design, Safety, Security & Reliability of Engineering Systems (22<sup>nd</sup> - 27<sup>th</sup> June, 2009)**

The first activity, will cover evolution of inherently safe & secure engineering systems. Multilayer defense and its implementation to reduce risk to improve physical protection, safety and reliability of engineered systems by systematic application of probabilistic & deterministic models. Fault tolerant design in engineered systems will also be covered.

## **ACTIVITY-II** **New and Novel Materials for Energy & Environment (29<sup>th</sup> June - 4<sup>th</sup> July, 2009)**

In this activity, the prime focus will be on the new and nanomaterials related to energy and environment, which are compact, cost-effective and efficient. Focusing on these aspects of advanced and novel materials, their synthesis, characterization and applications will be discussed. This will cover nanostructured materials, light metals and alloys, metal-matrix composites, tougher ceramics and their composites, thermally-stable high strength polymers, their composites and surface modification. This will also include solar absorbers, thin film technologies, photovoltaic cells, thermoelectric materials and electrode materials, etc.

## **ACTIVITY-III** **Biophotonics, Photodynamics & Microscopy (29<sup>th</sup> June - 4<sup>th</sup> July, 2009)**

During this activity Biophotonics special Biomaterials their characterization, optical models, polarimetry study models, Bioimaging, Photodynamic Therapy and Light Dosimetry and its interaction with Biomaterials will be discussed.

## **WORKING LANGUAGE:**

Participants must have an adequate knowledge of English which is the working language of the college.

## **VENUE:**

These Colleges have traditionally been held at the scenic summer resorts of Nathiagali, near Islamabad, the capital of Pakistan. Lodged in Sylvan slopes of lower Himalayan range, these hill resorts (2000-3000 meter high) are sheer slopes of colorful harmony, rolling fields and towering forested hills, pervading senses with a deep feeling of rediscovering nature, and providing an excellent blend of tranquil atmosphere conducive to learning and enjoying nature at its best.

## **FUNDING AND SPONSORSHIP:**

The boarding and lodging arrangements and the expenses are, in general, the responsibility of the Organizers. The travel costs are expected to be arranged by the participants. However, modest funds may be available to cover the expenses, either in full or in part, of some participants from the developing countries.

## **REGISTRATION:**

Requests for participation, on the prescribed form (or photocopy) should reach the Executive Secretary by 10<sup>th</sup> April, 2009. The selected candidates will be informed by 25<sup>th</sup> April, 2008. Advance applications can be sent by e-mail. Final selection, however, is subject to receipt of the formal application.

## **For further Information:**

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College Web Site: <http://www.ncp.edu.pk/insc>  
<http://www.paec.gov.pk/insc>

# Directorate of Quality Assurance organizes Software Engineering Course

PAEC's Directorate of Quality Assurance organized a two-day workshop on "Software Engineering" at COD, KNPC, Karachi (January 29-30, 2009) with the collaboration of M/s Netsol Technologies Ltd., Lahore (Pakistan's first Capability Maturity Model Integration (CMMI) Level 5, software company).

This two-day workshop was conducted to meet the requirements of ISO 9001: 2000 QMS Certification of COD, KNPC, leading to the excellence level achievement in PAEC.

The course tutor Syed Ali Abid, Manager Corporate Solutions, M/s Netsol Technologies Ltd. delivered his comprehension-skill based knowledge and its practical implementation to the participants of the workshop. Twenty three (23) participants attended this workshop at COD, KNPC, Karachi. The contents of this workshop are based on following expertise and knowledge:

- Overview of CMMI as Standard
- Software Engineering- Deliverable of Software Planning



Group photo of the participants of the workshop.

- Software Engineering- Deliverables of Requirement Management
- Introduction to Unified Modeling Language
- Using Rational Rose 2000 Object Oriented Design Verification and Validation of Artifacts Produced

The participants were given one month software development project, which is to be deposited to Training Division of DQA for further guidance and improvement in software development work of COD. After the completion of the project, participants will be awarded certificates. ■

## Sequencing information of sorghum genome

Dr. Mehboob-ur-Rahman, Sr. Scientist, NIBGE, Faisalabad, Pakistan, has been involved in conducting plant genomic research and its utilization in developing improved cotton germplasm and cultivars (NIBGE-2, NIBGE-115, NN-3 etc.) for benefiting the end user.

Dr. Rahman has the privilege of being the part of International Genomic Sequencing Consortium of two mega projects on sequencing of cotton and sorghum genomes (led by Prof Andrew H. Paterson, University of Georgia, USA). Sorghum crop sustains life in regions of low precipitation, provides food and fuel from starch and sugar, and has C4 photosynthetic mechanism. These were the

compelling factors to sequence its genome. Recently, sequencing information of sorghum genome (730 Mb) and its evolutionary relationship with the other sequenced dicot (poplar and Arabidopsis) and monocot (rice) genomes have been published in Nature as full length article on 29<sup>th</sup> Jan 2009 (Dr. Mehboob-ur-Rahman, NIBGE as one of the authors), which was also periodically broadcast by BBC worldwide.

The present study reveals that ~24% of the genes are grass-specific and 7% are sorghum-specific. Moreover, recent gene and microRNA duplications may contribute to sorghum's drought tolerance. Future availability of additional sequenced

genomes coupled with complementary bioinformatics tools may help to redraw the plant phylogeny, identify the ancestral gene set for angiosperms and clarify the subsequent evolutionary history of these genes, and provide new insight into the causes and consequences of fluctuating genome size. Better understanding of relationships among different angiosperm genomes and their constituent genes will expedite goals ranging from isolation of genes and determination of their functions, to identify DNA markers useful for marker-assisted breeding. ■



Dr. Mehboob-ur-Rahman.

## Member's visit Abroad

- Dr. Ansar Parvez, Member (Nuclear Power Projects), PAEC attended Annual Conference and Trade Show at Ottawa, Canada from 25-27 February 2009.

## Assignments of PAEC Experts Abroad

- Dr. Manzoor Ahmad Choudhry, Deputy Chief Engineer, Head, IAD, PINSTECH, Islamabad undertook assignment as an IAEA Expert at Dhaka, Bangladesh from 5-16 January 2009 for Task: To Install Cabon-14 System under Project Application of Isotope Techniques for Planning and Management of Water Reserves in Coastal Areas.
- Mr. Riaz Ahmed Wahed, Principal Scientist, NIAB, Faisalabad is carrying out assignment as an IAEA Expert at Ministry of Environment, Doha, Qatar for a period of two years from 04 February 2009.
- Mr. Masood Akhtar, Pr. Scientist (Geology), Waste Management, Directorate General of National Repository (DGNFC), Islamabad, participated in the IAEA International Training Course on the Uses of Cement and Cementitious Materials in the Geological Disposal of Radioactive Waste, Flums, Switzerland from 15-19 December 2008.
- Mr. Muhammad Aslam, DCS, Waste Management, Directorate General of National Repository (DGNFC), Islamabad, participated in the IAEA-Asian Nuclear Safety Network (ANSN) International Workshop on Sustainable Management of Disused Sealed Radioactive Sources (DSRS), Working Toward Disposal, Chiang Mai, Thailand, 12-16 January 2009.

## Visits of Chinese Experts

- The following Chinese Experts visited Karachi Nuclear Power Complex (KNPC), Karachi from 12-17 February 2009 regarding

### Turbine-Generator Overhaul:- Harbin Turbine Co. Ltd (HTC)

- Mr. Tong Yuanfa, Senior Engineer
- Mr. Ga Kun, Senior Engineer
- Mr. Zhu Chengbin, Senior Engineer
- Ms. Guo Min, Interpreter

### Harbin Electric Machinery Co. Ltd (HEC)

- Mr. Wang Yongchun, Engineer
- Mr. Xu Xingchang, Engineer
- Ms. Gu Zhongyuan PM/Interpreter

### Assignment as KANUPP Representative

- Mr. Mohammad Najamuddin, Deputy Chief Engineer, KNPC, Karachi will be undertaking assignment as KANUPP Representative with Candu Owners Group (COG) Office, Toronto, Canada for a period of six months from 26 February 2009.

### Foreign Trainees under IAEA Award

- Mr. Ahmed Al Tahan (Syria) is undergoing Fellowship Training in the field of Practical Engineering in Ultrasonic at NCNDT, Islamabad for a period of two months from 12 January 2009 to 11 March 2009 under IAEA Technical Co-operation Programme.
- M/s Samiullah and Nasrullah Khan (Afghanistan) are undergoing three months Fellowship Training at PIEAS, Islamabad in the field of Practical Training in the Department of National Regulatory Infrastructure for Radiation Waste Safety for a period of three months from 29 January 2009 to 28 April 2009, under IAEA Technical Cooperation Programme.

### Appointment Abroad

- Mr. Abdul Jalil Quraishi, Principal Engineer, KNPC, Karachi has been appointed as Resident Liaison Engineer of PAEC at the World Association of Nuclear Operators (WANO-Tokyo Centre) for a period of two years from 31 January 2009 ■

## PAEC Scientist awarded Ph.D. degree

Mr. Taufiq Ahmad, Principal Scientist, Nuclear Institute for Food and Agriculture (NIFA), Peshawar has been declared successful for award of Ph.D. degree in the field of Chemistry by University of the Punjab, Lahore. He accomplished his research work on "Chemical and Biological Evaluation and Fortification of Edible Oils" under the supervision of Prof. Dr. Saeed Ahmad Nagra. His research work has been published in 8 national and 7 international journals. Dr. Taufiq has also presented results of his research work in 11 National and International Conferences. ■



## PAEC Scientist awarded Ph.D. degree

Ms. Shaheen Atta, Principal Scientist, Nuclear Institute for Food and Agriculture (NIFA), Peshawar has been declared successful for award of Ph.D. degree in the field of Chemistry by University of the Punjab, Lahore. She accomplished her research work on "Standardization of Analytical Methods for Identification of Radiolytic Changes in Irradiated Poultry Meat and Fish" under the supervision of Prof. Dr. Saeed Ahmad Nagra. Her research work has been published in 4 national and 3 international journals. Dr. Shaheen has also presented results of ■



## Ph.D. degree for PAEC Scientist

Mr. Iftikhar Alam, Senior Scientist (Geology), has been awarded Ph.D. degree by NCEG, University of Peshawar for his work on study of the Structural and Tectonic Setting of North Pakistan. The title of his thesis was "Structural and Stratigraphic Framework of the Marwat-Khisor Ranges, N.W.F.P., Pakistan". This research work was supervised by Prof. & Director Dr. S. Hamid Ullah (Late) of NCEG and Prof. Dr. Sajjad Ahmed, Dept. of Geology, UOP. He has several publications to his credit in ■



# Third-Party Inspection of Uch Power Plant Conducted by PAEC's National Centre for Non-Destructive Testing (NCNDT)

Third-party inspection (TPI) is an activity carried out by qualified inspectors on behalf of the owner, contractor or material supplier. The owner, contractor, material supplier and third-party inspector have a vital interest in the success of a project. Effective TPI contributes to the success of a project by ensuring quality and reducing needless delays, costs, general disruptions and rifts between owners, contractors and material suppliers. NCNDT is providing TPI services to different organizations in the country. Recently, this service was provided to Uch Power Station, Balochistan. The team of NCNDT was responsible for carrying out the

following tasks:

- Audit and control of NDT contractor's activities.
- Review of NDT results of contractors.
- Preparation of summary of NDT results.
- Preparation of defect track sheet.

The job comprised NDT of different boilers components. This was seventh consecutive TPI activity of NCNDT on this power station since 2002. The

team monitored magnetic particle testing, dye penetrant testing, ultrasonic flaw detection & thickness measurement performed by M/s Inspectest (Pvt.) Ltd. Lahore and pressure safety/relieve valve testing which was done by M/s Reets

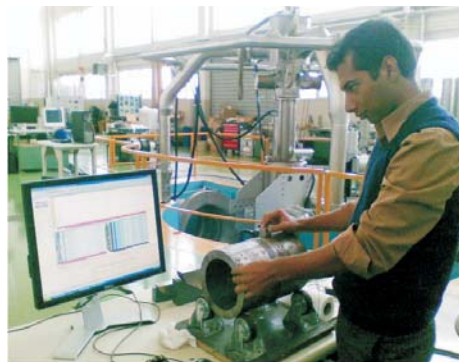


*Thickness measurement on Fire Water Storage Tank.*

## IAEA Fellowship Training at IENTEC Institute for Nuclear Technology, Zagreb, Croatia

Mr. Muhammad Anees Akhtar, SE and Mr. Jahanzeb, SE from NCNDT, SES Dte., attended three months fellowship training from 1<sup>st</sup> September to 30<sup>th</sup> November 2008 in the field of Automatic Ultrasonic Testing. Fellowship was related to IAEA TC Project PAK/04/046 entitled "Development of Capabilities in Automatic Ultrasonic and Material Corrosion Testing for Assessment". The fellowship training was held at IENTEC-Institute for Nuclear Technology, Zagreb, Croatia. During the training fellows worked on state-of-the-art ultrasonic testing techniques. Dynaray and Tomoscan-III equipment were used during the training.

They also had the opportunity of using Ultravision and Tomoview software for ultrasonic data acquisition, analysis and evaluation purposes. This training is highly beneficial for carrying out NDT inspection in Pakistan.



*Ultrasonic training on DYNARAY Equipment by using ULTRAVISION Software.*

### Rescheduling of the 15<sup>th</sup> Annual Training Course to be held at NIAB

15<sup>th</sup> Annual Training Course on "Safety Measures in the use of Radiation in Agriculture and Biology" was previously scheduled on March 2-6, 2009, now, planned to be held from 6-10 April 2009 at NIAB, Faisalabad.

## Ph. D. degree for PAEC Scientist

Mrs. Nasim Akhtar, Principal Scientist, PAEC's Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad has been awarded Ph.D. degree on February 8, 2009 in the 9<sup>th</sup> Convocation of Bahauddin Zakariya University (BZU), Multan. Mr. Yousaf Raza Gilani, the Prime Minister, Islamic Republic of Pakistan was the chief guest on this occasion who awarded the degrees to successful scholars.

Dr. Akhtar completed her research in Physics for the thesis titled "Radionuclide Pollution due to Fertilizer use in some Saline Soils of the Punjab and their Potential Risk Assessment on Human Health" under the joint supervision of Dr. Muhammad Tufail, Head Nuclear Engineering Division, PIEAS and Prof. Dr. Muhammad Ashraf Chaudhry, Physics Department, BZU. Dr. Akhtar has published 10 research papers in foreign and national scientific journals. She was declared as 'Distinguished Scholar' for outstanding academic research by European Journal of Scientific Research.