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DDG IAEA lauds PAEC for high standards in Nuclear Power Plants Operation



Group photo of DDG IAEA with Chairman PAEC and other officials

Mr. Mikhail Chudakov, Deputy Director General Nuclear Energy (DDG-NE) of International Atomic Energy Agency (IAEA), paid four-day official visit to Pakistan. During his visit, besides other activities, he also inaugurated three-day workshop on Nuclear Knowledge Management at PIEAS University, Islamabad, where he delivered lecture to the faculty and students of PIEAS.

Mr. Chudakov also visited nuclear power plants at Chashma and Karachi. He appreciated that Pakistan is full commitment to IAEA's objectives and is successfully operating nuclear power plants under IAEA safeguards. He showed keen interest in nuclear power programme of Pakistan and commended the high capacity and availability factors of Chashma plants. He also witnessed the unloading of fuel at Chashma nuclear power plant unit-4. He was impressed by the skill and professional acumen of the operators involved. He observed the upkeep and equipment condition at the plants. He delivered a lecture at Chashma nuclear power generating station on the use of nuclear energy and the role of IAEA in safe operation. Later, he visited NPPs at Karachi and praised the quality and standard of construction work at the site. He also keenly observed the physical security installation at KANUPP being put in place with the help of IAEA.

Mr. Chudakov, during his tour to Pakistan, also visited PAEC's Engineering and manufacturing setups.

During same visit, DDG, IAEA called on Chairman PAEC, Muhammad Naeem at PAEC Headquarters, Islamabad. Chairman PAEC appreciated role of IAEA in supporting Pakistan's nuclear power programme because of which Pakistan is now in a position to help other embarking countries in nuclear energy pursuit.



Chairman PAEC, Muhammad Naeem, HI, SI, presenting Shield to DDG, IAEA

ICCC Organizes Symposium on Quality and Safety Management

ICCC organized a 2-day Symposium on Quality and Safety Management on 17-18 April 2019 focusing the theme "Towards Corporate Framework for Indigenous Development of I&C Systems". The symposium invited speakers and participants from various sister organizations including PNRA. The Member (Science) and Director General (ICCC) graced the event to reaffirm their commitment and to motivate the participants towards

indigenization with focus on Quality and Safety. They signed a Symposium Communique which contains viable recommendations and suggestions of participants to establish Corporate Framework for Indigenous Development of I&C Systems. In-line with PAEC vision, ICCC such self-reliance in I&C systems for nuclear installations that requires strengths in Quality and Safety Management. ICCC is successfully operating ISO

9001:2015 certified Quality Management System (QMS) since February 2018, which is being improved to meet the needs and expectations of interested parties.

The QMS is being upgraded to ISO 19443:2018 which describes specific requirements for the organizations in the supply chain of the nuclear energy sector supplying products and services important to Nuclear Safety. As tangible outcome of the symposium, ICCC is to develop draft of Corporate Framework for Indigenous Development of I&C Systems which would be finalized with the consent of stakeholders. Effective implementation of framework will lead to develop I&C systems conforming requisite standards on Quality and Safety.



Participants with key Speakers of the Symposium

Breast Cancer Awareness Campaign at CNPGS



Participants of awareness campaign walk display poster

Atomic Energy Cancer Hospital (AECH), NORI in forefront in fight against cancer. Since its inception the hospital has been regularly organizing awareness programs to create awareness and to remove myths and misconceptions about the disease. NORI hospital has shown remarkable success for mobilizing women for cancer screening. One such awareness campaign was arranged by CNPGS in collaboration with Oncology and Radiology departments of NORI.

A team comprising of Oncologists and a Radiologist visited CNPGS. The team was headed by Dr. Humera Mahmood Consultant Oncologist and Head of Oncology and Radiology departments AECH, NORI to raise awareness and to provide breast cancer screening and consultation services for the female population belonging to Mianwali, Kundiyan, Chashma and other adjacent areas.

The campaign included various Breast Cancer awareness modes including lectures, walks, distribution of brochures and other education material. Dr. Humera Mahmood delivered many lectures in different schools, colleges and Ladies Clubs at Chashma. The lectures were attended by a large number of participants including dignitaries, gynecologists, radiologists, teachers, students and general public.

The participants showed keen interest and discussed their problems that created an open discussion about the

disease. Prior to these lectures about 2000 survey forms were distributed to assess the level of Cancer Awareness among doctors, teachers, students and general public. The collected data will be analyzed later on at AECH NORI and will be used for further improvement in creating awareness against cancer.

After every lecture an awareness walk was arranged to involve each participant in fight against Breast Cancer.

In addition, the participants were also provided with the services of clinical examination and consultations by the Oncologists. A total of 382 women were examined and given expert opinion regarding their health issues. Sixty nine ultrasounds were performed by the radiologist and among these sixty were breast ultrasounds while nine were of abdomen, pelvis and neck. Screening mammograms were advised to women above 40 years of age and two biopsies were performed.

The general physicians, gynecologists and nursing staff at Chashma hospital were educated about clinical breast examination, breast self-examination and means for early detection so that they may start Breast Cancer Screening at their hospital and educate others as well.

Overall the awareness campaign was very successful and it helped many of the poor patients who needed the advice and motivation.

First Biomedical Training Organize by S&S Directorate, PINSTECH and INOR



Participants of first biomedical course with Dr. Masood-ul-Hassan, Member Science (PAEC)

In accordance with vision of Member Science, INOR initiated to conduct training of junior Bio Medical Engineers (BMEs) working in Atomic Energy Cancer Hospitals (AECHs).

Member Science, Dr. Masood-ul-Hassan stressed upon AECHs' management to foster their efforts by better utilization of its resources. Dr. Seema Khalid (PE) Head BME (INOR) was deputed as Focal Person for coordinating in developing video-conferencing facility in all AECHs and capacity building of biomedical engineers/staff.

As a first step "All Bio-Medical Engineering meeting for enhancing engineering related activities in AECHs" was conducted by INOR which was chaired by Member Science on 14-12-2018. Sixteen out of eighteen AECHs participated and discussed challenges faced by engineers in AECHs. As a result of the meeting, INOR with the help of DMIS-HQs team successfully deployed BME Module of hospital Management Information System (HMIS) in seventeen AECHs and compiled equipment listings of all AECHs at DMS level in PAEC HQs.

Electronics Division of System & Services Directorate, PINSTECH has extensive experience in repair and maintenance of sophisticated medical equipment and scientific equipment. Therefore, Electronic Division, PINSTECH took the responsibility to design and conduct a week long extensive training for BMEs. The course

materials and Lab sessions were custom-designed in coordination with Head, BME INOR to meet their specific objectives related to Bio-Med Engineering. First Bio-Medical Engineer's Training was conducted from 8-12 April 2019 at PINSTECH. The training session was inaugurated by Dr. Muhammad Sohaib, Director, Medical Sciences, who highlighted the need for such programmes and appreciated the efforts of all stake holders.

This learning activity was arranged with the objective to enhance the technical cooperation and sharing of knowledge with young BMEs by senior and experienced engineers working in Electronics Division (PINSTECH) and other AECHs. Brain storming and interactive session along with specially designed LAB work were conducted in a week long course.

The concluding session of training was chaired by Dr. Masood-ul-Hassan (Member Sciences), Mr Iqbal Hussain Khan (DG PINSTECH), Mr Tafseer Ahmed (DG ICC), Mr. Rafique Sheikh (Director S&S, PINSTECH), Dr. Syed Zubair Ahmed, (Head, MIS, PINSTECH), Mr. Muhamad Asif Khan, (PD, LINAC, PINSTECH), Muhammad Naeem Abbas, (Head ED) and Training Coordinator Ms. Nazneen Kausar, (DCE, ED, PINSTECH) along with Bio-Medical engineers of eighteen AECHs. Member Science appreciated the efforts of Electronics Division of PINSTECH for organizing specialized training for the first time and desired to continue such trainings in future as well.

Seminar on Recent Updates on Prostate Cancer at INMOL



Director INMOL and others speaking at the Seminar

A Seminar was arranged at INMOL on "Recent Updates on Prostate Cancer". Oncologists and Nuclear Physicians from Lahore, Multan, Bahawalpur, Faisalabad and Gujranwala participated. Dr. Abubaker Shahid, Director, INMOL

welcomed the honourable guests and briefed them about the new facilities started at INMOL. Dr. Numair Younas, PMO and Dr. Ifran Ullah Khan, DCS explained background and success of Theranostics Project at INMOL. They

presented different cases scanned with Gallium-68 PSMA for Prostate Cancer on PET Scanner and later treated with Lu-177 therapy. Dr. Sohail Murad, Director GINUM talked about the various new hormonal choices. Dr. Misbah Masood Head Oncology INMOL presented the historical backgrounds and evolution of Lu-177 therapy. Dr. Ahmad

Farooq talked about 3D and IMRT Planning and comparison of CT Simulation with recently started MRI Simulation at INMOL. At the end question-answer session was held and participants highly admired the new developments at INMOL.

IAEA-NCNDT Workshop on Fracture Mechanics Analysis of Plant Safety Related Components: Leak-Before Analysis and Components/Piping Indication Analysis

National Centre for Non-destructive Testing (NCNDT), SES Directorate, PAEC in collaboration with International Atomic Energy Agency (IAEA) conducted a workshop on "Fracture Mechanics Analysis of Plant Safety Related Components: Leak-Before Analysis and Components/Piping Indication Analysis" from June 17-21, 2019 at NCNDT, SES Directorate Islamabad through IAEA Technical Cooperation (TC) Project. Mr. Pal Vincze (Hungarian), Mr. Hans Peter Gaenser (Austria) and Mr. Yuichi Okamura (Japan) were the IAEA experts. More than 35 participants from Chashma Nuclear Power Generation System (CNPGS), Karachi Nuclear Power Plant Unit 2 & 3, Pakistan Nuclear Regulatory Authority (PNRA), Pakistan Institute of Engineering & Applied Sciences (PIEAS), Heavy Mechanical Complex-3 along with NCNDT, PWI and Design Division of SES Directorate attended the workshop.

The workshop was formally inaugurated by Member Engineering, PAEC who appreciated the cooperation between IAEA and Pakistan Atomic Energy Commission (PAEC) for developing capabilities for safe and reliable operation of Nuclear Power Plants. The IAEA project technical officer Mr. Pal Vincze assured full support to the requirements of PAEC in the current project.

Major topics presented in the workshop included SCC for L-grade S.S in BWRs, brief review of linear-elastic fracture mechanics, safety countermeasures for KK nuclear power plant (ABWR), brief review of elastic-plastic fracture mechanics, etc. Along with IAEA experts, NCNDT experts also delivered presentations on topics such as NCNDT Testing Capabilities, inspection program implemented by NCNDT and Overview of Surveillance Program for RPV embrittlement.

Few sessions of Group exercises/discussion of selected example problems and round table discussion of the workshop participants with the IAEA experts were also arranged.

With these presentations and mutual discussion sessions, IAEA expert mission and the participants expressed deep sense of confidence towards developing the capabilities for safe and reliable operation of Nuclear Power Plants. In the concluding session of the workshop, Member Engineering PAEC awarded certificates to the workshop participants, and appreciated the role of IAEA for development of human resource of PAEC and effort of NCNDT for arranging the successful workshop.



IAEA expert Mr. H.P. Gaenser giving lecture in the workshop

Ph.D Degrees awarded to PAEC Employees



Dr. Zain Khurshid, SMO, Medicine Department, AECH, NORI, Islamabad completed her PhD from Rheinische Friedrich-Wilhelms-University, Bonn, Germany. She was awarded HEC scholarship in 2014. Her dissertation title was 'Improvement in Accuracy of PET Signals through Analysis of Textural Heterogeneity Parameters'. Her research involved extensive working with patients of brain tumor and prostate cancer. She has also published three research articles.



Dr. Muzafar Khan, Pr. Engineer, AECH, NORI Islamabad has been awarded PhD degree from Medical University of Vienna, Austria. The title of his dissertation was, 'Magnetic Resonance Imaging based polymer gel dosimetry for radiation therapy: basic properties of new normoxic polymer gels for high dose rates'. During his PhD, he investigated a novel 3D polymer gel dosimeter for radiation therapy. Dr. Khan published his work in IS indexed journals and also presented results at different international conferences.

Training Course on Ageing Management Programme in PAEC

In continuation of the efforts to enhance professional skills and competencies of PAEC officials, DGD Training Center, Islamabad arranged training course on “Ageing Management Programme (AMPs) Level-1 (Batch-1)” for Critical Structures, Systems and Components (SSCs) of Nuclear Power Plants (NPPs) of PAEC. The course was organized by Directorate of Training (DOT) in collaboration with Ageing Management Directorate (AMD) of PAEC. It was held at DGD Training Center, Islamabad.

This level-1 training course was first of its kind since the initiation of Ageing Management (AM) in PAEC. The primary objective of ageing management is to ensure the availability and reliability of required safety functions throughout the service life of NPPs. An effective AMP requires active involvement of plant personnel in condition assessment of critical SSCs to identify ageing degradation and their mitigation. This training course was an initiative for the development and implementation of AMPs in PAEC projects

and provided relevant technical knowledge of basic attributes of AMP. It would also serve as a knowledge sharing platform to create a broader awareness of ageing management issues in the perspective of internationally established practices and applicable guides, codes and standards of IAEA.

Around 38 officers from 30 establishments of PAEC participated in the subject course.

Secretary PAEC, Mr. Munir Ahmed, graced the certificate distribution ceremony as the chief guest. In his address, he appreciated the efforts of AMD and DGD in augmenting the awareness for systematic AMPs and highlighted the significance of Ageing Management. Secretary PAEC, Director General (RE & Design), Senior Director (AMD) and Director Training (DGD) distributed certificates among the course participants and awarded appreciation certificates to resource persons.



Group photo of the participants with Secretary PAEC

Medical Waste Incinerator developed by SES

Self-Reliance through indigenization is the key initiative of Pakistan Atomic Energy Commission (PAEC). Its Scientific and Engineering Services (SES) Directorate has a vast history of indigenization achievements. SES has been involved in all the projects of PAEC in the form of new equipment design & its manufacture, installation and commissioning activities.



First Indigenous Medical Waste Incinerator by SES

SES has developed and installed Medical Waste Incinerator of capacity 25 kg/hr at SINOR, Saidu Sharif SWAT. It has two burning chambers with temperature range of 800-1000°C.

The worth mentioning feature in this incinerator is that the waste is reduced from 100kg to 2.3kg. The SES incinerator is a mean of disposing a wide variety of Medical waste quickly and efficiently without the emission of visible fly ash, odour, and smoke. The emissions in the environment are safe and are according to international environment standards.

The fuel for burners is natural gas and dual fuel gas/liquid burner can be installed as per requirement.

There are many different types of incinerators like Medical, Municipal and Radioactive Waste etc. SES has the capability to provide the Medical and Municipal waste Incinerators of any capacity on turn-key basis.

Future demand of this piece of equipment is likely to be increased. SES is ready to design, manufacture, install and commission such incinerators to PAEC, sister organizations and for all national institutions.

NIFA organizes one day Awareness seminar on Food Safety, Food Bio- Preservation and Bio-Hazards Management



Participants of the seminar on food safety, food Bio-preservation and Bio-Hazards Management at NIFA Peshawar

One day awareness seminar on Food safety, Food Bio-Preservation and Bio Hazards Management was organized by Food and Nutrition Division, NIFA, Peshawar on 17th April, 2019. Food safety is one of important issue related to control of biological, biochemical and chemical hazards. Pakistan being emerging economic state is concentrating on the development of the food industries to meet hygienic food requirements for population. However, to regulate the food industrial waste and to safeguard the consumers and environment, there is a dire need to popularize culture on bio-hazards management. The objective of this workshop was to create awareness among food handlers, policy makers, food scientists, teachers, students and general public regarding the food safety concerns.

Prof. Dr. Tariq Masud, Founder Director, Institute of Food Science and Nutrition, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi (PMAS-AAUR) was the key note speaker in the event. Other resource persons included Dr. Abdul Sattar Shah, Director Technical, KP Food Safety and

Halal Food Authority, Dr. M. Jahangir, Director ORIC, University of Haripur, Dr. Sobia Nisa , Head, Department of Microbiology, University of Haripur, Dr. Muhammad Imran, Associate Professor, Department of Microbiology, Quaid-e-Azam University, Islamabad, Dr. Kashif Sarfraz Abbasi, Institute of Food Science and Nutrition, PMAS-AAUR and Dr. Talat Mahmood, Seminar organizer NIFA, Peshawar. More than 70 participants from various organizations participated in the seminar.

Dr. Maazullah Khan, Head Food & Nutrition Division in his welcome address highlighted the R & D activities of FND and significance of this seminar. Dr. Wisal Muhammad, Director, NIFA in his presentation explained NIFA significant R&D achievements and appreciated the efforts of seminar organizers, resource persons and participants for their keen interest. At the end of seminar, Dr. Talat Mahmood, Seminar organizer presented vote of thanks to all participants and resource persons.

Workshop on “Quality and Safe Practices of X-rays & Mammography” at GINUM



Group photo of the participants with Director GINUM

Atomic Energy Cancer Hospital GINUM organized a one day workshop on “Quality and Safe Practices of X-rays & Mammography” on 29th April 2019 at GINUM auditorium. This workshop was organized in collaboration with National Institute of Safety and Security (NISAS), a training center of

Pakistan Nuclear Regulatory Authority (PNRA). The objective of the workshop was to create awareness among participants about the quality and safe practices of X-rays and mammography procedures. This workshop was attended by around 100 radiographers from Government

and private sector of local community of Gujranwala and Sialkot division.

Director GINUM, Dr. Sohail Murad informed the audience about the available diagnostic and treatment facilities at GINUM. He also appreciated the collaboration of PNRA and efforts of Medical Physics department for arranging this activity. The course contents of this workshop were designed keeping in view the basic training requirements of radiographers that play an important role in medical imaging. The main topics discussed in the workshop were radiation protection, radiation safety, regulatory requirements, basic physics of X-rays and mammography, their controllable parameters, importance of quality control procedures for these equipment and medical ethics in

radiology. The PNRA representatives, Mr. Asad Ejaz Goraya (PE) and Zaigham Abbas (SE) delivered lectures on "Radiation Protection & Regulatory Requirements in Radiology". Dr. Asima Sohail, DCMO GINUM delivered lecture on "Medical Ethics in Radiology". Syed Raza Haider, SS GINUM and Dr. Haleema Zainab, PS GINUM delivered lectures on quality control procedures of X-rays and mammography respectively. The participants showed a keen interest and participated actively in discussion about various radiation safety aspects discussed during lectures.

In his concluding remarks Mr. Asad Ejaz Goraya, appreciated the arrangements made by GINUM management and said that such kind of activities are very fruitful for the local community of Gujranwala.

DNPEP organizes Visit of Local industries to K-2/K-3

Participation of local Industry is very essential to achieve the PAEC ultimate goal of self-reliance in Nuclear Power technology. To give awareness regarding the special requirements of Nuclear Power Plants (NPPs) and to provide a chance to comprehend the scope of local participation in future NPPs, a visit for local Industry to K-2/K-3 site was arranged on March 14th, 2019 by Directorate of Nuclear Engineering- Plants (DNPEP).

Thirty three (33) representatives from 18 security cleared local industries belonging to construction, manufacturing /supply of Mechanical, Electrical, Cables, Pipes, HVAC and I&C equipment participated in the event.

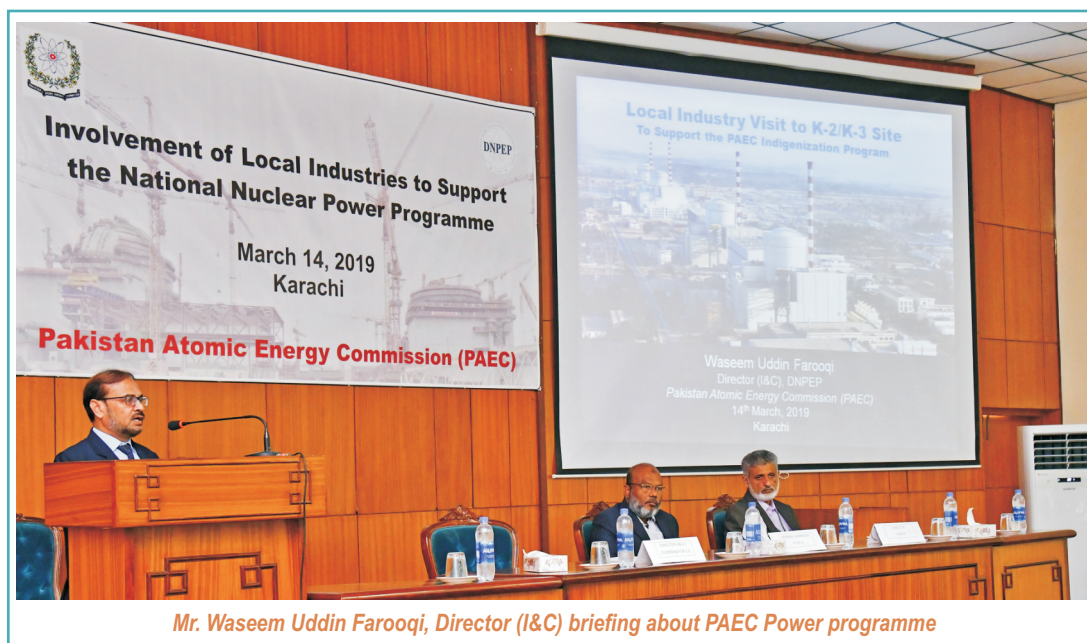
The opening session on "Involvement of local industries towards the National Nuclear Power Programme" was held at KINPOE auditorium, aimed to involve local Industry in nuclear power and prepare them to support the PAEC's vision of 8800 MWe by 2030.

Mr. Zakir Noor Khan, GM (K-2/K-3) and Mr. Asif Rajpoot Director (KINPOE) were present on the occasion. Mr. Waseem Uddin Farooqi, Director (I&C), C-5 Coordinator, M(E) Setup welcomed and briefed the visitors on nuclear power programmes and the future aims and goals of PAEC in this regard. He highlighted the importance of local industry's gradual and enhanced participation in the future successive NPPs to get self-reliance in nuclear power technology.

Afterwards, GM (K-2/K-3) delivered presentation on K-2/K-3 progress, the type of work, labor involved and the contribution PAEC made towards the project. At the end safety briefing was given by Mr. Ali Asghar, Head (Industrial Safety) before the site visit.

The delegations was taken for the site visit by Mr. Umer Iqbal, Manager (QAD) and Chaudhry Munir Ahmed, PD (Intake/Outfall). During the visit participants were briefed on the volume of work, the type of equipment installed and the construction activities carried out at site.

In the concluding session, various queries and reservations of local industry were addressed by the PAEC experts. The participants appreciated the efforts of PAEC towards involvement of local industries and assured their full support and cooperation towards the PAEC's efforts for self-reliance in Nuclear Power Technology.



Mr. Waseem Uddin Farooqi, Director (I&C) briefing about PAEC Power programme

Ph.D Degree awarded to PAEC Official



Dr. Khalid Mehmood, Principal Scientific Assistant, AECH, NORI, Islamabad completed his PhD from capital University of Science and Technology, Islamabad. He won HEC indigenous scholarship in 2014.

His dissertation title was "Numerical Simulation of Mixed convective Nanofluid Flows in a Square Cavity".

He published ten research articles in well reputed international journals.

PIEAS holds convocation 2019



Group Photo of graduates with Chairman PAEC and Chairman SUPARCO at PIEAS Convocation 2019

The Ninth Convocation of Pakistan Institute of Engineering and Applied Sciences (PIEAS), was held on April 4, 2019. Chairman SUPARCO, Maj. Gen. Amer Nadeem, HI(M), was the Chief Guest. He conferred degrees on the successful candidates of PhD, MS, and BS, in the disciplines of Nuclear-, Systems-, Electrical-, Materials-, Process- and Mechanical Engineering, Nuclear Medicine, Radiation and Medical Oncology, Computer Science, Radiation Physics, Medical Physics, and Physics. The awardees included seventeen (17) PhDs, two hundred and sixty-eight (268) MS, and one hundred and sixty-six (166) BS students. Thirteen (13) Gold Medals, sixty-one (61) Merit Certificates, and thirty-seven (37) Certificates of Appreciation were also awarded to outstanding graduates.

The chief guest said in his address that "There is a need to increase quality of human resource in the country". He praised the efforts of PAEC in areas of power, agriculture and health. He saluted the visionary leaders of PAEC for establishment of HR institutes like PIEAS to meet national challenges.

Chairman of the Pakistan Atomic Energy Commission, Muhammad Naeem, HI, SI, and Rector, PIEAS, Dr. Nasir Majid Mirza, felicitated the students who received degrees and distinction during the convocation. In his address Chairman, told the audience that PAEC is doing all efforts to achieve at least eleven (11) out of seventeen (17) Sustainable Development Goals (SGDs) set by the United Nations (UN). He informed the audience that after establishment of first nuclear medicine centre at Karachi in 1960, PAEC has so far established eighteen (18) cancer hospitals in every part of the country with modern diagnostic and therapeutic facilities for the general public.

PIEAS is a leading national university devoted to higher education in specific disciplines of engineering and applied sciences. PIEAS ranks among top 400 universities of the world, according to the Quacquarelli Symonds (QS) World University ranking 2019.

Large Size Storage Tanks for K-2/K-3 Project

HMC-3 was entrusted for the manufacturing of 217 Nos. of equipment (Contract value US\$ 18.45 millions) weighing 2200 tons for K2/K3 project.

Manufacturing of 192 equipment was carried out at HMC-3 workshops which has been completed and dispatch to site and 25 large sized equipment weighing 800 tons at K2/K3 site. All equipment are completed according to agreed schedule with CZEC.

Picture shows site manufacturing of 02 No. of large size Storage Tanks (Diameter 16m, Height 22m) of capacity 3700m³ and weight 180 tons each. These are the largest tanks which are indigenously manufactured first time with in PAEC including poly urea coating on the inside surface.

The inspection of these tanks was carried out at various stages according to approved quality plan by CZEC representative and after acceptance has been handed over to Installation Company.



Fuel Storage Tank Manufactured at HMC-3