EXECUTIVE SUMMARY

Upon a request from Karachi Nuclear Power Plant (KANUPP) to the IAEA, an Engineering Safety Review Service in relation to a follow up review service of ageing management programmes performed by KANUPP was provided from 12 to 16th February 2007. The requested review mission was conducted as a follow-up mission of the AMAT (ageing management assessment team) mission in 1999. In addition, since the AMAT main mission was done eight years ago and mainly focused on general aspects of plant ageing management programmes, the follow-up mission also newly reviewed ageing management programmes for specific components and structures established after the previous mission. Concepts of the new IAEA SALTO (safe long term operation) peer review service were also taken into account for the review.

The Karachi Nuclear Power Plant (KANUPP), a 137 MWe pressurised heavy water reactor of CANDU type, has been supplying electricity to the grid of metropolitan Karachi since 1972. During three decades of operation, the plant has faced the normal phenomena of ageing and obsolescence. These problems were compounded by the fact that the plant was forced to operate for almost 15 years in complete isolation from its original vendors, while the nuclear power industry continued to progress in safety and other standards.

Pakistan Atomic Energy Commission (PAEC) requested IAEA assistance to facilitate safe operation of KANUPP to 2012. The request included a provision of guidance on establishing a systematic ageing management programme (AMP) and, to respond to this request, the IAEA Ageing Management Assessment Team (AMAT) mission was organized from 15 to 19 November 1999. The IAEA also organize specific expert missions on ageing management programmes of I&C cables and on those of MOVs in November 2000.

The objectives of this follow-up mission are to provide information on good ageing management practices in other Member States and to review KANUPP actions to the recommendations/ suggestions provided by the main AMAT mission in 1999 as well as on-going ageing management programmes for specific mechanical/electric components and civil structures important to safety established and implemented by KANUPP.

The mission fulfilled its objectives through the review of the document presented to the mission and the fruitful discussions during the one-week meetings with the counterparts.

Through the review, the IAEA review team recognized that a strong leadership has been taken by the plant management in establishing ageing management programmes. A station instruction and technical manuals have been prepared based on IAEA guidance publications. Many projects which cope with ageing issues have been launched.

The team reviewed the recommendations from previous missions and reformulated those that had not been implemented. Among 17 issues raised by the main mission, five have been solved, 10 have been partially solved, and two are in progress. Nevertheless the team noticed that some of these issues should be further addressed to establish effective and systematic ageing management programmes. In this regard, the team provided nine recommendations and two suggestions which superseded the previous recommendations/suggestion.

In addition the team reviewed specific ageing management programmes for mechanical components, electric and I&C components and civil structures which have been established after the mission in 1999 and raised relevant new issues and corresponding recommendations/suggestions. The main point of these new issues is that these specific ageing management programmes need to be further improved taking into account recent

international good practices. 22 new recommendations were provided by the team as a result of these specific ageing management programme reviews.

The conclusions were presented at the exit meeting to Mr. Butt, a director general of the plant. This report includes the detailed recommendations issued by the team.