The KKM plant has developed a comprehensive strategy to manage the core shroud cracking issue and allow long term operation. The strategy includes chemical treatment of the reactor water, improved ultrasonic inspection tooling, analytical modelling, and the future optimization of the tie-rod design.

- The plant is an industry leader for on-line noble metal chemical addition (OLNC). Previously, the plant added the noble metal annually and injected a low rate of hydrogen in the reactor water continuously. However, evidence suggests the on-line OLNC process, in conjunction with the same low rate of hydrogen addition, better protects the shroud and other core internals. Pool side inspections of fuel and careful monitoring of this chemical addition has confirmed there is not a detrimental impact on fuel performance. In addition, reduced injection rates of hydrogen reduce plant dose during power operation.

- Plant personnel have worked with industry experts to refine inspections on the core shroud welds. For example, while ultrasonic testing (UT) inspections on the shroud welds have been performed for years, improved tooling allows for better weld coverage and accuracy. The UT data on the crack growth in welds is very comprehensive.

- Detailed three dimensional finite element analytical models of the shroud and supporting reactor structures are used to provide a structural assessment of the cracked core shroud. The modelling, coupled with conservative input assumptions and accurate crack measurements, quantify available structural margin. The results of the assessment verify the shroud has adequate design margins, even for extremely unlikely accident scenarios.

- The utility plans to add further design margin in the future to support long term operation. In the mid-1990's, the shroud was strengthened by adding four stabilizers or "tie rods" to the original design. The new design will replace the four existing tie rods with six tie rods of an improved design.

The actions completed to date, in combination with a future design change, provide a comprehensive short and long-term strategy for the KKM core shroud. Plant personnel will continue on-line OLNC, visual and ultrasonic inspections, and detailed analytical fracture mechanics modelling. These actions ensure current operation is safe and adequate margin exists for unlikely postulated accidents. The new tie-rod design, after installation, will increase design margin further and possibly allow reductions in the scope of visual and ultrasonic inspections.