5E.5 CONCLUSION

An engineering evaluation has demonstrated the acceptability of the CCNPP Units 1 and 2 concrete Containments with degraded conditions found during the 20-year (1997) containment tendon surveillance. The most severe conditions found were in the vertical tendon population. Some Units 1 and 2 vertical tendons, which have corrosion on individual wires below their upper (top) stressing washer, have not been replaced or repaired. The majority of the tendons exhibiting the greatest corrosion levels were replaced. In addition, vertical tendons that had exhibited lower than expected lift-off forces in 1997, and were not replaced, were restressed. The Containments were also demonstrated acceptable after considering the prediction that some corroded wires in tendons not replaced will break over the operating life of the two Containments. The Units 1 and 2 Containments will have sufficient vertical tendon prestress at the end of their operating licenses to meet the minimum design basis requirement of 123,620 kips gross vertical prestress, and 606 kips mean average force per tendon sheath.

When its operating license expires July 31, 2034, the Unit 1 vertical tendon prestress will have appreciable margin above the two minimum design values. The 47 new tendons and 20 restressed tendons were seated to at least 742 and 725 kips, respectively. In addition, the design basis vertical prestress can be achieved with up to 1,195 additional wires breaking in the original non-replaced vertical tendon population between 2002 and July 31, 2034.

When its operating license expires August 13, 2036, the Unit 2 vertical tendon prestress will have appreciable margin above the two minimum design values. The 46 new tendons and 30 restressed tendons were seated to at least 742 and 725 kips, respectively. In addition, the design basis vertical prestress can be achieved with up to 1,228 additional wires breaking in the original non-replaced vertical tendon population between 2002 and August 13, 2036.

Table 5E-2 of Section 5E.2.4 shows that the Unit 1 Containment will have greater vertical tendon prestress at the end of its operating license after tendon replacement, tendon restressing, and predicted wire breaks, than it would have under the original tendon system design. However, the table also shows that the Unit 2 Containment will have slightly less vertical tendon prestress at the end of its operating license after tendon replacement, tendon restressing, and predicted wire breaks, than it would have under the original tendon system design. Although there is potentially less design margin above the minimum requirements, there is still sufficient margin. There was conservatism used in the development of the new calculated end-of-life vertical prestress. In addition, CCNPP expects that future tendon inspection data will verify that there will be far less actual wire breaks than currently assumed, allowing the predicted margin at the end of the extended operating licenses to approach (in Unit 2's case) or far exceed (in Unit 1's case) the original design margin.