SECTION XI

CONCLUSION

The first petition submitted to downclassify metal/metal semiconstrained hip joint prostheses by the Orthopedic Surgical Manufacturers Association (OSMA) was reviewed by the Orthopedic Device Panel on August 8, 2001. The panel voted five to two that the devices should not be reclassified, concluding that the information in the petition did not demonstrate that special controls would provide reasonable assurance of safety and effectiveness and that there was not sufficient information to establish special controls. Specifically, the panel determined that there was insufficient clinical and preclinical testing information presented. The length and rate of the long-term patient follow-up data were inadequate to demonstrate that special controls would provide reasonable assurance that the devices were safe and effective for their intended use. In addition, the preclinical information, including validation of wear simulation, non-ideal wear testing, and biological evaluation of metallic wear debris generated by devices were not established. The agency agreed with the panel, and in the Federal Register published on September 6, 2002, the Deputy Director reiterated these concerns. OSMA was informed that whenever new information becomes available the association may submit a second petition for evaluation.

Following the denial publication, OSMA members informed the agency that the trade association would re-submit a petition with information to address each of the stated deficiencies. OSMA contacted two recognized experts in the field of alternative bearing surfaces to assist, as paid consultants, with the preparation of the second petition. Pat Campbell, PhD, who has published extensively on the short and long-term biological effects of implant materials, has written a comprehensive review of the published literature on the retrieval analysis of metal-on-metal total hip replacement. The Federal Register notice stated that the evaluation of the response to metallic wear particles may include evaluating retrieved human devices. Harry McKellop PhD, with assistance from OSMA members has carefully addressed the issue of special controls. His report describes nominal design parameters as they relate to neck-socket impingement, diameters, ball-cup clearance and sphericity, surface roughness and metal composition. He also provides the industry's recommendation for special controls with a realistic two-tier program of laboratory evaluations for bearing surfaces.

The issue of the lack of long-term data in the first petition has also been resolved in this reclassification petition. At a meeting held at the agency on January 23, 2002 and during teleconferences held on April 25 and September 4, 2002, FDA advised OSMA members to present a device survivorship analysis of the metal-on-metal devices from the clinical studies described in the original petition as a means for supplying this information. OSMA has provided a comprehensive report of device survivorship from four clinical investigations of metal-on-metal total hip prostheses sponsored by three member companies. Two of the studies of considerably longer duration, sponsored by Zimmer (formerly Centerpulse), were not part of the first petition. The other two studies, from

Biomet and DePuy, were part of the original petition. Additional clinical results reported from the published literature is also included.

In light of the information presented and the longevity of metal-on-metal hip prostheses, OSMA members believe that downclassification from Class III to Class II is warranted.