Syed template implants play an important role in the management of gynecological cancers. Typical treatment planning consists of obtaining orthogonal films and digitizing individual "dummy" seed locations to reconstruct the sources in 3-D. Bladder and rectal doses are obtained from the location of the Foley catheter and rectal markers on these films. This current methodology is not only cumbersome, but potentially error prone. We describe here a method of treatment planning for Syed template implants which uses a CT simulator. Following insertion of the Syed template, the patient is scanned on a CT simulator using a 2.0 mm slice thickness/table index. The tips and ends of individual needles are identified on axial slices and contoured. The data are then transferred to the treatment planning computer where the seed positions are reconstructed, based on the needle information, and the dose distribution is calculated in 3-D. Isodose distributions are overlaid on CT anatomy and dose surface histograms (DSHs) are calculated for the bladder and rectum. Results of the CT-based treatment plan for the Syed implant indicate that bladder and rectal DSHs are highly non-uniform. For a particular Syed implant the average bladder and rectal doses are estimated as 89 cGy/hr and 29 cGy/hr, respectively, based on using points digitized from the orthogonal films. The DSH analysis, however, reveals that 15% and 40% of the surface area, respectively, receives more than the average dose. This analysis indicates the benefit of CT in the planning of Syed template implants.