We investigated the spectra obtained from a laser produced plasma (LPP) x-ray source utilizing rare-earth metal targets. Experiments were performed with Table Top Terawatt laser and rare-earth metal targets including La (Z = 57; K-edge 38.9 keV), Ce (Z = 58; K-edge 40.4 keV), Nd (Z = 60; K-edge 43.6 keV) and Gd (Z = 64; K-edge 50.2 keV). Infrared and/or green light lasers were operated in a single-pulse or dual pulse mode and had surface power density in excess of 10^{19} W cm^{-2}. X-rays were generated by the "hot electrons" and were measured using a battery of photomultiplier tubes equipped with Ross filters. X-ray spectra contained a continuous bremsstrahlung component as well as discrete K characteristic lines. The continuous bremsstrahlung was independent of the target composition, and showed no evidence of any a cutoff energy. The shape of the continuous bremsstrahlung spectrum was described by the function E^{-p}, where $p(>0)$ is primarily determined by the temperature of the hot electrons produced by the laser produced plasma. The intensity of the characteristic x-rays was about a factor of five higher than the corresponding bremsstrahlung, and showed a small increase (~10%) when the atomic number of the target increased from Z=57 to Z=64. This form of x-ray production will permit target materials to be easily changed with no limit on the input power. As a result, it might be possible to tailor the spectra to the specific imaging task, reduce focal spot sizes and increase the x-ray output.