

## REDUCTION OF CARBON INFLUX BY MINIMIZING TILE HEATING IN DIII-D\*

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As predicted by theoretical models, the graphite tiles lining the walls of the DIII-D vacuum vessel can exceed a temperature of 2000°C. At this temperature, ablation of the ATJ graphite material at the tile edges occurs and carbon dust is produced. With the release of carbon particles, contamination of the plasma occurs and plasma operations are restricted. This theoretical prediction has been confirmed by observed increased carbon contamination in the plasma and wearing of tile edges. To reduce the carbon contamination analysis was performed to identify what could be done to reduce the tile temperature. Tile geometry was investigated to minimize the heat flux on the tile face and edges, as well as changing to tile material with greater thermal capacity. This paper details the various tile configurations, installation scenarios, and material types that were evaluated to minimize the ablation/sublimation of the tiles. The tile designs and material type will be incorporated into the final stage of the DIII-D Radiative Divertor Program (RDP) upgrade which is to be completed by the end of 1999.

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