

SPACE DEBRIS SYMPOSIUM (A6)
Modelling and Risk Analysis (2)

Author: Mr. Robert Kelley
ESCG/Jacobs, United States, robert.l.kelley@nasa.gov

USING THE DESIGN FOR DEMISE PHILOSOPHY TO REDUCE CASUALTY RISK DUE TO
REENTERING SPACECRAFT**Abstract**

Recently the reentry of a number of vehicles has garnered public attention due to their risk of human casualty due to fragments surviving reentry. In order to minimize this risk for their vehicles, a number of NASA programs have actively sought to minimize the number of components likely to survive reentry at the end of their spacecraft's life in order to meet and/or exceed NASA safety standards for controlled and uncontrolled reentering vehicles. This philosophy, referred to as "Design for Demise" or D4D, has steadily been adopted, to at least some degree, by numerous programs. The result is that many programs are requesting evaluations of components at the early stages of vehicle design, as they strive to find ways to reduce the number surviving components while ensuring that the components meet the performance requirements of their mission.

This paper will discuss some of the methods that have been employed to ensure that the consequences of the vehicle's end-of-life are considered at the beginning of the design process. In addition this paper will discuss the technical challenges overcome, as well as some of the more creative solutions which have been utilized to reduce casualty risk.