

2/29/03

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Summary of Issues Discussed and Knowledge Transferred at Sandia National Labs:
02/29/03-02/30/03

Thermal Issues:

Antonio Dias and I met with Carlos Lopez to discuss thermal issues related to the cask vulnerability study.

We discussed the following:

1. Results of CAFE/PATRAN P-Thermal vs. the results of the VULCAN runs with the 1-D heat transfer analysis. The results indicate that the coupled runs with PATRAN P-Thermal are providing more realistic temperature profiles and are less simplistic than the 1-D heat transfer calculations. Temperatures between the CAFE and VULCAN codes appear to be consistent, which is a good indication that both codes are capturing the characteristic behavior of the fire.
2. The duration of the fire that would be reported was discussed at length. All involved agreed that a ½ hour fire was more realistic, as data on actual airplane crashes showed very few that lasted any appreciable length of time. A 15 minute uncertainty for fire duration was discussed, but in order to hold to that kind of uncertainty, the data would have to be examined more closely. Carlos agreed to write up a ½ hour fire in the next revision of the report. It was agreed that data could be taken from current analysis runs at the 30 minute point and that data could be used for any subsequent heat transfer analyses.
3. Some discussion was had on the next steps in the thermal analysis. Carlos was to provide some input as to what additional work he felt needed to be done. The general consensus was that the VSC-24 was enough like the HOLTEC design that it did not need to be re-modeled. There was some debate over whether or not the NUHOMS "bunker" design would need to be modeled, as it could possibly be a "worse" design for the scenarios investigated than the HOLTEC. Antonio suggested that there may be sensitivity studies that could be done on the HOLTEC model to better understand how the NUHOMS design might react to the fire scenarios investigated. The TN-68 is an all steel cask that most likely would be similar to the HOLTEC design.
4. I spoke to Lou Gritzo (the sponsor of the VULCAN code) about duration of fires, about burning of fuel in gravel beds, and about the work he is currently doing for NRR on auxiliary building fires. This was a very informative discussion, and I have several leads on which I will follow up to obtain more information.

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