



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D. C. 20555

Aug. 2, 2000

**MEMORANDUM TO:** Sorensen, Apostolakis, Kress, Powers  
Larkins, Larson, Savio

**MEMORANDUM #:** ~~AWC 107 2000~~

**FROM:** A. W. Cronenberg

**SUBJECT:** Review of Jack Sorensen Paper: *Safety Culture*

Overview Comments: This paper is interesting reading, on par with your work on *Defense in Depth*. I have trouble grasping with these high level concepts; you manage to give them some concrete spin. The paper gives a good historical perspective of efforts to pin down what constitutes the rather vague concept of Safety Culture. I do however, have some problems on the INTENT of the paper and where you want to go with the information you give us....?? Additional comments in this regard are as follows.

Paper Title: The two word title (*Safety Culture*) does not convey to the reader what the intent of the paper is. How about something like....."Safety Culture and Performance Monitoring", or "Safety Culture and Its Impact on Plant Performance", or some other descriptive title.

Introduction: The introduction section needs some statement on the *purpose* of the paper. The present introduction goes directly into discussion of what safety culture is or embodies, but I couldn't get an up-front feel as to what you wanted to accomplish or convey in the paper. You need an up-front statement like: "In this paper we examine.... or "This paper presents..... In a similar vein, it would help if you gave the reader an up-front outline/structure for the paper. Right after the Introduction you start into the discussion of the INSAG model of safety culture and then go on to tell us about other safety culture models. It would help if you first gave a brief outline/structure of what we can expect to learn from reading this paper. I suggest that last paragraph of Introduction should read something to the effect:

"In this paper we examine the concept of safety culture and present .....  
Blah-blah-blah.....  
To accomplish this goal we first review some prior definitions of safety culture, then go on to.....Blah-blah-blah....(state paper purpose/structure).....  
Conclusions are also made regarding the implications of safety culture on the regulatory process, including methods to quantify safety culture and to factor safety culture attributes into plant performance monitoring."

Safety Culture Attributes: On page-2 and the first column/page-3, you are basically reviewing various definitions of Safety Culture. In the second paragraph of column one/page-3 you then start a somewhat different discussion of the attributes of safety culture. The paragraph begins as follows: "While the literature does not support a single definition of safety culture, there is some agreement on the organizational attributes that indicate a strong safety culture". It appears to me you have now gone on to a different aspect of the paper.....attributes. I think the structure of the paper would be enhanced if you started a new section here; entitled something to the effect.....*Safety Culture Attributes*.

Conclusions: I think summarizing statements by other authors, i.e. Lee, Selafield, Reason, etc are a bit out of place in a section entitled *Conclusions*. I suggest either this section be re-named "SUMMARY" if you want to keep it as is. However, I'd prefer to just have your contributions to the Safety Culture discussion summarized here (you've given us enough of what others have said on the subject). Maybe you could entitle this last section something to the effect: OBSERVATIONS and IMPLICATIONS for the REGULATORY PROCESS. At this point in the paper I'd much rather hear your bottom-line observations and impact on the regulatory process. Isn't this the real aim of the paper anyway. I'd think so.

Additional Comments: See markups on paper.