

TABLE OF CONTENTS

ABSTRACT.....	5
FOREWORD.....	6
1. INTRODUCTION.....	7
2. CURRENT FIRE PSA METHODOLOGY: OVERVIEW AND ISSUES.....	9
2.1 Fire PSA Overview.....	9
2.2 Specific Topics and Issues.....	11
3. MODELING OF FIRE, SMOKE AND HEAT SPREADING AND ITS IMPLICATION TO PSA	26
3.1 Simulation Models and Codes Used for Analyzing Fire Spreading	26
3.2 Simulation Models and Codes Used for Analyzing the Production and Spreading of Smoke and Heat.....	33
3.3 Code Development	36
3.4 Concluding Remarks	52
4. IMPACT OF SMOKE AND HEAT ON SAFETY RELATED SYSTEMS.....	53
4.1 Introduction.....	53
4.2 Experimental Studies on the Impact of Smoke on Instrumentation Electronics, Electrical Equipment and Suppression Systems	53
4.3 Models Used in Analyzing the Impact of Smoke and Heat on Electronics and Electric Equipment.....	57
4.4 Examples of Relevant Incidents of Smoke and Heat Impact on Electronics and Electric Equipment and Cable Fires.....	61
5. FIRE PSA APPLICATION DIFFERENCES.....	67
5.1 Objectives of Fire PSA	67
5.2 General Guidance for Performing Fire PSAs	69
5.3 Selected Issues	70
6. CONCLUSIONS	75
7. REFERENCES.....	78
8. GLOSSARY	93
9. ACRONYMS.....	95
APPENDIX 1 - QUESTIONNAIRE ON CSNI/PWG5 TASK 97-3 "FIRE RISK ANALYSIS, FIRE SIMULATION, FIRE SPREADING, AND IMPACT OF SMOKE AND HEAT ON INSTRUMENTATION ELECTRONICS "	97