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Organisation de Coopération et de Développement Économiques
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**NUCLEAR ENERGY AGENCY
COMMITTEE ON THE SAFETY OF NUCLEAR INSTALLATIONS**

**NEA/SEN/SIN/AMA(2009)7
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Working Group on the Analysis and Management of Accidents

INTEGRATED PLAN

September 2009

English text only

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COMMITTEE ON SAFETY OF NUCLEAR INSTALLATIONS
CSNI Working Group on the Analysis and Management of Accidents
(WGAMA)

INTEGRATED PLAN

(SEPTEMBER 2009)

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WGAMA Chair

Ivan Tóth

WGAMA Vice-Chair

Salih Güntay

WGAMA Secretaries

Abdallah Amri

Jong-Chull Jo

1. WGAMA Mandate

Scope

The Working Group on the Analysis and Management of Accidents (WGAMA) shall be responsible for activities related to potential accidental situations in nuclear power plants, including the following technical areas: reactor coolant system thermal-hydraulics; design-basis accident including ECCS strainer clogging; pre-core melt conditions and progression of accident and in-vessel phenomena; coolability of over-heated cores; ex-vessel corium interaction with concrete and coolant; in-containment combustible gas control; physical-chemical behaviour of radioactive species in the containment; fire safety. The activities will mainly focus on existing reactors, but will also comprise applications for some advanced reactor designs. Priority setting will be based on established CSNI criteria as documented in the CSNI Operating Plan, in particular on safety significance as well as risk and uncertainty considerations.

Objective

The WGAMA objective is to assess and where necessary strengthen the technical basis needed for the prevention, mitigation and management of potential accidents in nuclear power plants, and to facilitate international convergence on safety issues and accident management analyses and strategies.

In order to fulfil this objective, the working group shall:

- Exchange technical experience and information relevant for resolving current or emerging safety issues
- Promote the development of phenomena-based models and codes used for the safety analysis, including the performance of benchmarking exercises
- Assess the state of knowledge in areas relevant for the accident analysis and where needed
- Promote research activities aimed to improve such understanding, while supporting the maintenance of expertise and infrastructure in nuclear safety research

The Working Group shall report to the Committee on the Safety of Nuclear Installations (CSNI) and assist this Committee with its work. The activities will normally be carried out by small task groups, each set up for performing a specific task under the WGAMA supervision. The output of the Working Group will consist of state-of-the-art reports and other technical reports, workshops and related proceedings, benchmarking exercises and joint research proposals.

The Working Group will aim to provide answers as requested by CSNI and/or CNRA and will co-ordinate its work with other working groups, notably with WGRISK for risk related issues and for priority setting, WGOE for emerging issues and WGIAGE for ageing and structure integrity evaluation. WGAMA will also work in co-ordination with the NEA-NSC on scientific issues such as advanced coupled neutronic / thermal-hydraulic methods. Interaction with joint projects will be strengthened as recommended in the CSNI Operating Plan.

2. WGAMA vision and goals

The Group vision is to make significant contributions in the followings safety related areas:

- Regulatory decision-making regarding prevention and management of accidents and related high priority safety issues, through the elaboration of existing information or data available in member countries. Where appropriate, missing information should be identified, providing also recommendations on how to obtain it. The input for activities in this sector is expected to come from CSNI, CNRA (through CSNI) or directly from member countries (through their representative in WGAMA). Typically, the duration of

each activity should not exceed 1-1½ year. The products would be recommendations on best use of existing knowledge for accident management purposes or on means to acquire more information where needed. Regulators and industry are to be the main users of these WGAMA products.

- Analyses of relevant operational events, for the purpose of producing an as clear as possible understanding of specific events and for identifying possible preventing measures. The analyses may expand over a broader range of conditions in order to evaluate the extent to which similar events in different circumstances might challenge plant safety. Investigations may also address industry initiatives aimed to increase plant output through e.g. power up-ratings and plant life extension, for which co-operation with other CSNI WGs would be needed. Possible lack of knowledge of the processes involved or limitations in models or computer codes prediction capability might surface from work in this sector. Thus, activities in this area may have varying duration depending on scope and on the obtained results, and may be structured in distinct self-contained phases. Input is expected to come from WGOE, from CSNI or directly from member countries. The product would be assessments based on analyses carried out by one or more parties with one or more analytical tools. Users would be regulators, safety research organisations and industry.
- Assessment of the state of knowledge and progress in the understanding of phenomena and processes governing the occurrence, progression and mitigation of potential accidents, including improved methodology¹ and performance and use of safety analysis codes. Gradually increasing attention should be given to new or advanced reactor systems, for which there will be a need of substantial knowledge build-up. As this is a broad and not precisely defined area of work, rigorous criteria should be applied in setting priorities, focusing on those areas that have higher safety relevance and/or a more pronounced risk profile, and for which relevant outcome is likely to be produced in a reasonable time frame. The activities in this sector are expected to constitute the “base-load” of the WGAMA group. As they may be long lasting, it is very important that they be well prioritised and structured, such that useful intermediate results are systematically brought forward: interaction with WGRISK is important for priority setting. Input is expected to come from CSNI or from member countries (through their representative in WGAMA and/or in WGRISK). Output is to be used by safety analysts.

Strategy for new WGAMA activities

Most of the present WGAMA programme has dealt or deals with

- Calculation tools and methods, such as the CFD and BEMUSE tasks
- Benchmarking exercises such as ISP-41, ISP-47, ISP-49, ISP-50 and CFD benchmark based on customised T-junction experiment or the accident progression exercise
- Knowledge assessment through state of the art reports, e.g. on iodine or nuclear aerosols
- Data preservation and knowledge transfer (CCVM and THICKET)

It can be observed that in most cases the programme has been oriented towards generic aspects, without entering into the specifics of well-defined issues or of particular reactor designs or accident management features. An exception has been the SERENA programme, which has focussed on the in-vessel and vessel steam explosion issue.

Many WGAMA activities have been completed or are near completion (see also the time table of section 5). The programme has been extensive and has resulted in a considerable amount of CSNI reports (see section 8). In general, the activities have been well conceived and well structured, also considering the boundary conditions that were present when WGAMA was established. The time

¹ Such as best-estimate methods, uncertainty and/or sensitivity evaluation methods, or CFD codes.

schedules as proposed in the CAPS have generally been followed, although some tasks have been delayed.

Methods, benchmarking and data preservation in the field of thermal-hydraulics and severe accidents have dominated the WGAMA work so far and are expected to remain important also for the future WGAMA work, constituting a significant part of the WGAMA “base-load”. However it is expected that there would be an approach change in response to specific CSNI recommendations. In particular, the generic discipline-oriented approach that has prevailed so far should be gradually accompanied by a more issue-oriented approach, i.e. an approach that will aim to provide answers to specific safety issues. This may include addressing subjects that were not picked-up by WGAMA in the past such as sump clogging, fire safety or gas cooled nuclear reactor safety thermal-fluid phenomena.

Finding a balance between base-load activities and issue-focussed activities will be one of the main WGAMA challenges for the future. Establishing sound mechanisms for priority setting and for gathering input from “stakeholders” will be a key factor for achieving such balance.

Priority setting is dealt with in the CSNI Operating Plan, which identified the following criteria:

- Issue of high safety significance and of importance to nuclear regulators
- Better accomplished by international group
- Likely to bring conclusive results in reasonable time frame
- Maintain and preserve strategic safety competence

The point on the last bullet (maintain and preserve strategic safety competence) may be a support argument, but not the main criterion to decide upon a new activity. WGAMA may use these broad criteria to derive more concrete criteria where practical.

Input gathering can be achieved by actively interrogating the following sources:

- Regulator requests expressed via CNRA, CSNI or from member countries
- Operating experience via WGOE, from CSNI or from member countries
- Input from other CSNI or CNRA WGs, notably WGRISK for risk-relevant issues
- Requests from member countries regarding safety aspects for advanced reactors
- Experimental results or analyses deriving from joint projects

The interaction with the various OECD-NEA Joint Projects will constitute another important reference for future planning of the WGAMA programme of work. While it is true that the results of the Joint Projects are normally restricted to those countries that contribute to the project funding, it is also true that in most cases the results become publicly accessible after a period of typically three years after the project period completion. The description of the completed projects and the data availability status can be found on:

<http://www.nea.fr/html/jointproj/welcome.html>.

For the ongoing projects, the CSNI has requested that a set of experimental data be made available upon request from a CSNI WG for the purpose of performing code evaluations and assessments (ISP) within the WG frame, even before the confidentiality period expires. The NEA secretariat has communicated this CSNI request to the Management Boards of the various Joint Projects.

3. Safety Issues and Topics relevant for WGAMA

The CSNI Operating Plan identifies the Safety Issues and Topics (SIT): these SITs have recently been redefined by the PRG, and are listed in the table below. The WGAMA relevant issues are marked.

**Table 1: List of the SITs as a function of the CSNI/CNRA main challenges
(WGAMA relevant issues marked in green color)**

Main Challenges → SITs ↓	Shrinking nuclear infrastructure	Increased public expectation on safety	Industry initiative to improve safety and economics	Necessity to ensure safety over plant lifecycle	New reactors and new technology	CSNI WG
Knowledge management	X					All
Experimental facility loss	X					All
Use of risk-informed regulation		X				WGRISK WGAMA
Transparent technical basis for safety assessment		X				All
Management strategies			X			WGHOFF
Maintaining safety margins			X			All
Fuel and fuel cycle safety			X			WGFS, WGFCF
Maintaining safety culture			X			WGHOFF
Ageing management				X		WGIAGE
New risk perspectives and safety requirements				X		All
Upgrades in digital technology				X		WGRISK
Risk management across operating modes				X		WGRISK
Digital technology					X	WGRISK
New materials and fabrication technologies					X	WGIAGE
New concepts of operation					X	All
New methods and tools					X	All

4. WGAMA work-scope

The activities constituting the current WGAMA work-scope are listed in Table 2 below, following the CAPS chronological order. The SIT associated with each activity is also listed in the table (Note: these are the SITs as defined in NEA/CSNI/R(2007)7, i.e. not those as recently revised by the PRG, in order to be consistent with the text on the CAPS).

Table 2: Current WGAMA activities

Reference SIT	Activity/Objective	CAPS number
Maintaining data	<p>Phenomena-based Validation Matrix for Ex-Vessel (Containment) Models / Codes</p> <p><i>To define a basic set of available experiments for comparison of measured and calculated parameters covering the full range of ex-vessel phenomena expected in the course of light water reactor severe accidents.</i></p>	GAMA (2001) 4 Rev. 4 (Oct.2004)
Quantification of safety margins including uncertainty	<p>Best-Estimate Methods (including Uncertainty and Sensitivity Methods), Qualification and Application</p> <p><i>To evaluate the practicability, the quality and reliability of best-estimate methods including uncertainty evaluation in applications relevant to nuclear reactor safety and to promote/ facilitate their use by the regulatory bodies and the industry.</i></p>	GAMA (2002) 3 Rev. 3 (Dec.2005)
Appraisal of safety assessment approaches	<p>Application of CFD Codes to Some Selected Two-Phase Flow Safety Issues</p> <p><i>To give orientations for the development, assessment and application of two-phase CFD tools to some selected Nuclear Reactor Safety (NRS) issues. It follows recommendations made by the WG3 on Extension of CFD to two-phase safety problems.</i></p> <p>Workshop on Experimental Validation and Application of CFD and CMFD codes to Nuclear Reactor Safety issues (XCFD4NRS-3, Sept. 2010)</p> <p><i>To promote an appropriate validation of CFD tools applied to Nuclear Reactor Safety (NRS) issues, including single-phase and multi-phase (CMFD) applications.</i></p>	GAMA (2005) 3 (Dec. 2005) GAMA(2008) 1
Appraisal of safety assessment approaches (cont.)	<p>A blind CFD benchmarking activity based on a customised T-junction experiment)</p> <p><i>To promote, test and evaluate the use of Best Practice Guidelines (BPGs) in CFD simulations by organising a blind numerical benchmark on a flow mixing problem of practical interest to Nuclear reactor Safety..</i></p> <p>ISP (ISP-50) on ATLAS 50% DVI (Direct Vessel Injection) Line Break</p> <p><i>To perform an ISP exercise for a direct vessel injection (DVI) line break in the ATLAS which is a new large-scale full pressure thermal-hydraulic integral test facility for advanced PWRs.</i></p> <p>ISP (ISP-9) on Hydrogen Combustion</p> <p><i>To assess the current capabilities of hydrogen combustion models and codes participating in the ISP and user effects and update the available database within the international framework on hydrogen combustion.</i></p>	GAMA (2008) 2 GAMA (2008) 3 GAMA (2009) 1

Reference SIT	Activity/Objective	CAPS number
Capture previous research, maintaining data, appraisal of safety approaches	Web-based CFD info centre (pilot project) <i>To keep up-to-date the CFD validation/assessment database, using a web-based portal (access limited to WGAMA only)</i>	GAMA (2007) 1
Capture previous research, building international consensus, provide realistic understanding of accident behaviour	Assess effectiveness of core exit temperature measurement (CET) in accident management (AM) <i>To review and consolidate the background knowledge of CET applications in AM</i> Workshop on Implementation of Accident Management Measures <i>To update the common understanding of severe accident management measures and their treatment in risk assessment.</i> Workshop on In-Vessel Coolability <i>To update the common understanding of in-vessel coolability including the implications for accident management and safety studies and to exchange technical experience and information relevant for resolving the issue</i>	GAMA (2007) 2 GAMA and RISK CAPS 2008 GAMA (2008) 4
Capture previous research, building international consensus, provide realistic understanding of accident behaviour (cont.)	Workshop on Gas Cooled Nuclear safety Thermal-Fluid Phenomena <i>To discuss gas cooled reactor thermal-fluid safety issues aiming to ensure that experimental programs are obtaining data needed for model development and to support system analysis code development and assessment.</i>	GAMA (2009) 2

The following of the SITs as revised by the PRG are not (or not directly) addressed in current WGAMA work:

- *Use of risk informed regulation.* This SIT has been dealt with in an activity, closed in 2007, on uncertainties in severe accident phenomena in relation to Level-2 PSA. It is considered only indirectly in some current activities, for instance in the SOARs on iodine and aerosols, and in some of the joint OECD projects focus on this (e.g. MCCI). This SIT could be addressed more thoroughly through a stronger interaction with WGRISK.
- *Experimental facility loss.* This SIT has not been directly addressed, however it is often of issue indirectly e.g. when identifying gaps during a SOAR activity. The topic is implicitly addressed in almost every WGAMA meeting, when proposals for or results of OECD projects (e.g. SETH, PKL, ROSA, SERENA) are discussed.

Completed and ongoing WGAMA projects (organised by discipline)

The WGAMA work so far (end of 2007) has been strongly discipline-oriented and clearly driven by technical interests that mostly originated from WGAMA itself. The themes covered can be summarised as follows (pertinent joint projects are listed in the shaded fields with italic characters):

- | | | |
|----|--|--------------------|
| a) | Thermal-Hydraulics of Reactor Coolant and Related Safety and Auxiliary Systems | |
| | • Best-estimate methods and uncertainty analysis (BEMUSE) | in progress |
| | • ISP-50 on ATLAS 50% DVI (Direct Vessel Injection) Line Break | in progress |
| | • Use of CFD codes for NRS (Guidelines, Assessment, 2-Phase) | in progress |
| | • <i>PKL-2 Joint Project on heat transfer mechanism in SG</i> | <i>in progress</i> |
| | • <i>ROSA Joint Project on AM issues relevant for water reactors</i> | <i>completed</i> |
| | • <i>ROSA-2 Joint Project on AM, stratification, water hammer</i> | <i>in progress</i> |
| | • <i>PSB-VVER Joint Project, SB and LB LOCA in VVER-1000</i> | <i>completed</i> |
| b) | In-Vessel Behaviour of Degraded Cores and In-Vessel Protection | |
| | • Accident progression benchmarking exercise (progress since TMI-2) | completed |
| | • ISP-46 exercise based on the PHEBUS FPT-1 test | completed |
| | • SERENA Phase-1 analytical exercise (FCI and steam explosion) | completed |
| | • <i>MASCA Joint Project, in-vessel corium behaviour</i> | <i>completed</i> |
| c) | Containment Behaviour and Containment Protection | |
| | • ISP 47 on containment thermal-hydraulics | completed |
| | • Phenomena-based validation matrix, ex-vessel (CCVM) | in progress |
| | • ISP-49 on Hydrogen combustion | in progress |
| | • <i>SETH-2 Joint Project, containment thermal-hydraulics</i> | <i>in progress</i> |
| | • <i>MCCI Joint Project, core-concrete interaction and core coolability</i> | <i>in progress</i> |
| | • <i>SERENA Joint Project, ex-vessel steam explosion</i> | <i>in progress</i> |
| d) | Fission Product Release, Transport, Deposition and Retention | |
| | • ISP 41 on iodine behaviour | completed |
| | • SOAR on Iodine chemistry | completed |
| | • SOAR on nuclear aerosols | completed |
| | • <i>THAI Joint Project hydrogen, iodine and aerosol TH behaviour</i> | <i>in progress</i> |
| | • <i>BIP Joint Project, chemistry of iodine in post-accident conditions</i> | <i>in progress</i> |

The *PRISME Joint Project on fire safety* also pertains to the WGAMA sphere.

5. Schedule of WGAMA Work (+/- 3 years from September 2009)

Item	2006	2007	2008	2009	2010	2011	2012	Status
BEMUSE Phase-1								Completed
Phase-2 (Report)								Completed
Phase-3 (Report)	■	■						Completed
Phase-4 (Report)		■	■	■				Completed
Phase-5 (Report)				■	■			Completed (**)
Phase-6 (Report)				■	■	■		In progress
Future activities, questionnaire								Completed
CFD WG-1 (Guidelines)	■	■						Completed
WG-2 (assessment matrix/report)		■	■					Completed
WG-3 (2-Phase application report)		■	■	■	■			Completed (***)
CFD4NRS workshop (proceeding)		■	■					Completed
Workshop on CFD for 2-Phase		■	■		■			Completed (**)
Web-based information portal			■	■	■			In progress
A blind CFD benchmarking activity based on a customised T-junction experiment					■	■	■	In progress
Workshop on Experimental Validation and Application of CFD and CMFD codes to Nuclear Reactor Safety issues					■	■	■	In progress
THICKET 2008 – course thermal-hydraulics			■	■				Completed
SARNET 2008 – course severe accident			■	■				Completed
Accident progression benchmark exercise		■	■	■				In progress
Phenomena-based validation matrix ex-vessel (CCVM: report, database abandoned)	■	■	■	■	■			In progress
SOAR on Nuclear Aerosols (report)	■	■	■	■				Completed (**)
<i>Small group on SA</i>		■	■					Completed
CET effectiveness			■	■	■	■		Completed (***)

Additional items under consideration:

- ISP on integral TH test from ATLAS
- BE-guidelines for LP analysis of containment TH
- Assess test facility capabilities for future reactors
- Workshop on implementation of SAMG (+WGRISK)
- Treatment of uncertainty in level 2 phenomena

(**) Being published
 (***) To be submitted to

Item	2006	2007	2008	2009	2010	2011	2012	Status
Workshop on Implementation of SAM Measures								In progress
ISP-49 on Hydrogen Deflagration								In progress
ISP-50 on ATLAS 50% DVI Line Break								In progress
Workshop on Gas Cooled Nuclear Reactor Safety Thermal-Fluid Phenomena								In progress

Additional items under consideration:

- ISP on integral TH test from ATLAS
- BE-guidelines for LP analysis of containment TH
- Assess test facility capabilities for future reactors
- Workshop on implementation of SAMG (+WGRISK)
- Treatment of uncertainty in level 2 phenomena

(**) Being published
 (***) To be submitted to

6. Co-ordination with others

Co-ordination with other CSNI groups and NEA committees

Co-ordination is done through the NEA Secretariat. WGAMA works together with IAGE, WGRISK and SM2A on e.g. uncertainties and methods. Future co-operation with WGRISK should aim at defining agreed priorities for activities in both groups. This phase is starting by a joint Workshop on Implementation of Severe Accident Management Measures which will take place in September 2009. Future co-operation with WGIAGE should encompass the interaction between accident and structure condition in terms of accident consequences. Two members of WGAMA are participating to the activity of the CSNI Task Group on Safety Margins Application and Assessment. WGAMA also works with the Nuclear Science Committee on a number of items, mainly in the field of thermal-hydraulics.

Co-ordination of activities with the EU and IAEA

EU and IAEA representatives attend regularly and present progress reports in the WGAMA meetings. They actively participate in the definition of work to ensure co-ordination.

Industry participation

Industry representatives from several countries participate in the GAMA meetings activities. Industry also participates in many of the WGAMA-related OECD Projects.

7. Ensuring quality

All WGAMA activities have a co-ordinator or leader, who has the main responsibility for the performance of the work. One or more (internal) reports are usually issued for each WGAMA activity. A final report, normally issued as a CSNI report, is normally mandatory (depending on the CAPS definition) upon completion of each activity. Reports intended for CSNI approval have to be reviewed and agreed upon by the experts who performed the work; in addition an external QA-review is made by an expert who has not been party to the activity. This practice, having an independent peer review, has been introduced with satisfactory outcome during the past. Afterwards, the endorsement of the WGAMA plenum is sought before going through the PRG review and CSNI approval.

8. List of WGAMA reports (2002-2009)

1. Knowledge Base for Strainer Clogging - Modifications performed in different countries since 1992, NEA/CSNI/R(2002)6.
2. Severe Accident Management Operator Training and Instrumentation Capabilities, OECD/CSNI Workshop Summary and Conclusions, 12-14 March 2001, Lyon, France, NEA/CSNI/R(2002)11.
3. Implementation of Severe Accident Management Measures - Summary and Conclusions: OECD/CSNI Workshop, 10-13 September 2001, Villigen, Switzerland, NEA/CSNI/R(2002)12.
4. Proceedings of an exploratory meeting of experts to define an action plan on best estimate calculations and uncertainty analysis - Aix en provence - 13-14 May 2002, NEA/CSNI/R(2002)15.
5. Proceedings of an exploratory meeting of experts to define an action plan on the application of computational fluid dynamics (CFD) to nuclear reactor safety problems - Aix en provence - 15-16 May 2002, NEA/CSNI/R(2002)16.
6. ISP-45 (QUENCH 06 Test) - Final Comparison and Interpretation Report, NEA/CSNI/R(2002)23

7. Regulator and Industry Co-operation on Safety Research: Challenges and Opportunities - Final Report and Answers to Questionnaire, NEA/CSNI/R(2003)3.
8. ISP-44 (KAEVER tests): "ISP-44 - Comparison and Interpretation Report - Final", NEA/CSNI/R(2003)5.
9. ISP-42 (PANDA tests): "ISP-42 - Comparison and Interpretation Report - Final" Volume I (Blind Exercise), NEA/CSNI/R(2003)6.
10. ISP-42 (PANDA tests): "ISP-42 - Comparison and Interpretation Report - Final" Volume II (Open Exercise), NEA/CSNI/R(2003)7.
11. Responses to the survey on "Redefining the Large Break LOCA: Technical Basis and its Implications", NEA/CSNI/R(2003)16
12. Proceedings of the Joint CSNI/CNRA Workshop on 'Redefining the Large Break LOCA: Technical Basis and its Implication, NEA/CSNI/R(2003)17/VOL1/2.
13. Summary and Conclusions of the OECD/NRC Workshop on Debris Impact on Emergency Coolant Recirculation; Albuquerque, NM, USA, 26-27 February 2004, NEA/CSNI/R(2004)2, Workshop Proceeding, OECD 2004 NEA 5468.
14. Current Severe Accident Research Facilities and Projects - Revised October 2003, NEA/CSNI/R(2004)6.
15. SERENA coordinated programme (Steam Explosion Resolution for Nuclear Applications) - Phase 1 Task 1 Final Report - Identification of relevant conditions and experiments for fuel-coolant interactions in nuclear power plants - Revision 1 - December 2002, NEA/CSNI/R(2004)7.
16. ISP-41 Follow-up Exercise Phase 2 (CAIMAN and RTF), NEA/CSNI/R(2004)16.
17. ISP-46 (PHEBUS FPT-1 experiment): Comparison Report – Final, NEA/CSNI/R(2004)18.
18. Progress Made in the Last Fifteen Years through Analyses of the TMI-2 Accident Performed in Member Countries, NEA/CSNI/R(2005)1.
19. Presentation a priori of the Uncertainty Evaluation Methodology to be used by the Participants - BEMUSE Phase 1 Report, NEA/SEN/SIN/AMA(2005)1.
20. Recommendations on Guidelines for the Use of CFD in Nuclear Reactor Safety Applications, NEA/SEN/SIN/AMA(2005)2.
21. Assessment of CFD Codes for Nuclear Reactor Safety Problems, NEA/SEN/SIN/AMA(2005)3.
22. BEMUSE Phase-2 Report, Re-analysis of the ISP-13 Exercise, NEA/CSNI/R(2006)2.
23. Extension of CFD Codes to Two-phase Flow Safety Problems, NEA/SEN/SIN/AMA(2006)2.
24. State of the Art Report on Iodine Chemistry, NEA/CSNI/R(2007)1.
25. Evaluation of Uncertainties in Relation to Severe Accidents and Level-2 Probabilistic Safety Analysis - workshop proceedings - Aix-en-Provence, 7-9 November 2005 NEA/CSNI/R(2007)2.
26. Proceedings from the Workshop on Benchmarking of CFD Codes for Application to Nuclear Reactor Safety (CFD4NRS), Garching, Germany, NEA/CSNI/R(2007)3.
27. BEMUSE Phase III Report: Uncertainty and Sensitivity Analysis of the LOFT L2-5 Test NEA/CSNI/R(2007)4, October 2007.
28. Best Practice Guidelines for the use of CFD in Nuclear Reactor Safety Applications, NEA/CSNI/R(2007)5.
29. International Standard Problem ISP-47 on Containment Thermal-hydraulics, NEA/CSNI/R(2007)10.

30. SERENA – Steam Explosion Resolution for Nuclear Applications, OECD research programme on fuel coolant interaction, NEA/CSNI/R(2007)11.
31. CFD code assessment for Nuclear Reactor Safety Applications, NEA/CSNI/R(2007)13
32. *Proposals for Future Activities in the Area of CFD for WGAMA*, NEA/SEN/SIN/AMA(2008)2
33. *Proposal for Future Activities in the Area of Severe Accidents*, NEA/SEN/SIN/AMA(2008)3
34. BEMUSE Phase IV Report: Simulation of a LB-LOCA in ZION Nuclear Power plant, NEA/CSNI/R(2008)6
35. Ability of Current Advanced Codes to Predict Core Degradation, Melt Progression and Reflooding-Benchmark Exercise on an Alternative TMI-2 Accident Scenario, NEA/CSNI/R(2009)3
36. State-of-the-Art Report on Nuclear Aerosols, NEA/CSNI/R(2009)5 (being published)
37. BEMUSE Phase V Report: Uncertainty and Sensitivity Analysis of a LB-LOCA in ZION Nuclear Power Plant, NEA/CSNI/R(2009)13 (being published)
38. Proceedings of the Workshop on Experiments and CFD Code Application to Nuclear Reactor Safety (XCFD4NRS), NEA/CSNI/R(2009)12 (being published)