December 30, 2003

MEMORANDUM TO: Nilesh C Chokshi, Chief
Materials Engineering Branch
Division of Engineering Technology
Office of Nuclear Regulatory Research

FROM: Carolyn J Fairbanks
Materials Engineering Branch
Division of Engineering Technology
Office of Nuclear Regulatory Research

SUBJECT: FOREIGN TRIP REPORT - MEETING AT IAEA

Attached is the trip report for Dr. Randy Nanstad's trip to the International Atomic Energy Agency (IAEA) for a meeting with other consultants to participate in the "Joint Consultant Meeting to Develop the Strategic Plan on Nuclear Power Plant Life Management with European Commission/Institute of Energy." The objective of the meeting was to avoid duplication of research efforts primarily associated with reactor pressure vessels, between the IAEA and the Institute of Energy. A general overview and conclusions regarding a strategic plan are detailed in the attached trip report.

Attachment: As stated
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Attachment: As stated

Subject:

Report of Foreign Travel

Dates of Travel, Countries, and Organizations Visited:

November 23-30, 2003, IAEA Headquarters, Vienna, Austria

Author, Title, and Agency Affiliation:

Randy K. Nanstad, Metals and Ceramics Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

Sensitivity:

The report is unclassified and does not contain any proprietary data.

Background/Purpose:

To meet with a group of other consultants invited by the International Atomic Energy Agency (IAEA) for "Joint Consultant Meeting to Develop the Strategic Plan on Nuclear Power Plant Life Management with European Commission/Institute of Energy." The traveler also met with Dr. Ki-Sig Kang, the IAEA representative, to discuss detailed planning for finalizing the IAEA CRP on Nickel Effects. The itinerary is provided in Appendix A.

Abstract: Summary of Pertinent Points/Issues:

The traveler is the representative of ORNL and the HSSI Program for two IAEA Cooperative Research Projects (CRP) on RPV steels, and is a co-author and editor of the IAEA Technical Report Series (TRS) document on neutron embrittlement of RPVs. The IAEA invited the traveler to attend a consultancy meeting entitled "Joint Consultant Meeting to Develop the Strategic Plan on Nuclear Power Plant Life Management with European Commission/Institute of Energy." The motivation for such a meeting was to establish coordination between the IAEA and the Institute of Energy to avoid unnecessary duplication of research in programs primarily associated with reactor pressure vessels. The meeting was attended by nine consultants from seven countries, including two members from the Joint Research Center/Institute of Energy in Petten, The Netherlands. The group prepared a set of tables that summarize the activities of both organizations and showed that no duplication of programs exist within those that are fully available to the public. As the designated chairman of the IAEA CRP on Mechanisms of Nickel Effects in RPV Steels, the traveler held separate discussions with the Scientific Secretary, Dr. Ki-Sig Kang. The traveler recommended four other CRP members to participate in a meeting to be held in March to draft the TECDOC for the CRP.

Discussion:

The traveler is the representative of ORNL and the HSSI Program for two IAEA Cooperative Research Projects (CRP) on RPV steels, and is a co-author and editor of the IAEA Technical Report Series (TRS) document on neutron embrittlement of RPVs. The IAEA invited the traveler to attend a consultancy meeting entitled "Joint Consultant Meeting to Develop the Strategic Plan on Nuclear

Power Plant Life Management with European Commission/Institute of Energy." The motivation for such a meeting was to establish coordination between the IAEA and the Institute of Energy to avoid unnecessary duplication of research in programs primarily associated with reactor pressure vessels. The meeting was attended by nine consultants from seven countries, including two members from the Joint Research Center/Institute of Energy in Petten, The Netherlands. Dr. Phillip Tipping, of the HSK in Switzerland, chaired the meeting for the first day, and the traveler chaired the last two days of the meeting due to a planned early departure of Dr. Tipping. Presentations were made by the two representatives from the Joint Research Center, and by Dr. Kang of the IAEA. These presentations provided detailed information regarding ongoing activities within each organization. Moreover, Dr. Kang provided a copy of the minutes of the last meeting of the IAEA Working Group on Life Management of Nuclear Power Plants (TWG LM-NPP). The minutes showed a list of topics that the TWG LM-NPP considered as priority areas for IAEA research efforts in the area of reactor pressure vessels. Based on that list, the consultants group prepared a set of tables that summarize the activities of both organizations. These tables are shown in Appendix B to this report.

As shown in the tables, areas of existing cooperation, potential cooperation, and duplication are summarized. Additionally, the tables summarize these areas for reactor pressure vessels, pressurized thermal shock, and knowledge management. The area of knowledge management appears to be gaining considerable visibility and attention internationally. As stated previously, no areas of duplication were identified within publicly available programs, but a number of areas for potential cooperation between the IAEA and the JRC-IE were identified.

As the newly designated chairman of the IAEA CRP on Mechanisms of Nickel Effects in RPV Steels, the traveler held separate discussions with the Scientific Secretary, Dr. Ki-Sig Kang. It was decided to schedule a meeting of selected CRP members to be held in Vienna during the week of 15 March 2004, with the goal to finalize the TECDOC (the IAEA report that presents the results of the CRP). Contact was made with four members, all of whom indicated their willingness to serve and their availability during that week

Additionally, the traveler is an invited co-author and member of an editorial board organized to prepare and publish the IAEA TRS on "Neutron Radiation Embrittlement of LWR Reactor Pressure Vessels." The traveler is the author of Chapter 3, "Effects of Irradiation on Mechanical Properties," and will be one of the three editors of the published document. The traveler is also a co-author of Chapter 8, "Current State-of-the-Art of Irradiation Embrittlement." Now that all chapters have been received at the IAEA, the TRS will be submitted to the IAEA for preparation as a final draft document and for independent review. Publication is expected during the first quarter of 2004.

Additionally, the traveler discussed with Dr. Kang the issue of early notification for meetings to allow for sufficient time to make arrangements for the foreign travel, including coordination with other U.S. government organizations.

Pending Actions/Planned Next Steps for NRC:

There are no actions for the NRC identified by the travelers.

Points for Commission Consideration or Items of Interest:

There are no issues identified by the travelers that require Commission action.

Attachments:

Appendix A – Itinerary
Appendix B – Consultancy Group Report to IAEA
Appendix C – Distribution

APPENDIX A

ITINERARY
R. K. Nanstad

2003

11/23-24	Travel from Knoxville, Tennessee, to Vienna, Austria.
11/25-28	International Atomic Energy Agency, Vienna, Austria.
11/29	Weekend
11/30	Travel from Vienna, Austria, to Knoxville, Tennessee.

APPENDIX B

REPORT OF IAEA CONSULTANCY GROUP

General Overview and Conclusions on Strategic Plan with IAEA and JRC-IE

Date : 26 -28 Nov. 2003

Place : VIC, Austria

After three days meeting with external experts and JRC-IE staffs to identify the dupiicated areas and maiximize the achivements of research results, the following tasks or activities are categorized for areas of exsiting coopeation, areas of potential cooperation and areas of duplication.

1. Areas of existing cooperation
   - JRC-IE is a TWG LM-NPP member and participates in Technical Committee Meetings (TCM)
   - Technical collaboration with JRC-IE for SPMs
   - Joint IAEA/ EC technical meeting (Oct. 2002)
   - Participation in the preparation of TECDOC reports
   - Distribution of AMES reports to TWG members
   - JRC-IE is custodian of IAEA WWER- 1000 reference material and takes part in its characterization

2. Areas for potential cooperation
   - Joint organization for SPM on irradiation effects in RPV steels (May 2004)
   - Joint organization for SPM on core internals behaviours and technology for repair and replacement (Oct. 2004)
   - TWG members to be invited for ATHENA final workshops and conference.
   - JRC – IE will invite IAEA to take part in the PERFECT Integrated project – Users group
   - Strategic plan preparation meeting annually to discuss IAEA and JRC-IE planned scope and topics, and with external experts to review the achievements and forth coming events biannually.
   - Participation in training courses or workshops to introduce the contributions of IAEA and JRC-IE for PLiM

3. Areas of duplication.
   - No specific instances of duplication have been identified. It is noted that some technical areas, such as fracture toughness, non-destructive examination, etc., are evaluated by both IAEA and JRC-IE, but, for example, the ATHENA activity is limited to information exchange while IAEA CRPs include research and development projects.

- In the future, areas of information exchange on similar subjects will be coordinated through the joint strategic planning meetings and meetings of the TWG LM-NPP.
- Additionally, many organizations participate in both IAEA and EC projects, such that duplication of research efforts tends to be avoided.

Exchange information with TACIS and PHARE projects.

Several EC funded Tacis and Phare projects are planned, on going or have been completed in above mentioned areas. Since the detailled output from those projects are the property of the EC (DG Relex, DG Aidco, DG Elarg) and the beneficinaries under commerical confidence, the research results are not publicly available. It is recommended that the IAEA open a dedicated discussion with the EC responsible DGs in order to consider the extent of their availability to the IAEA.

REACTOR PRESSURE VESSEL

MECHANISM/ISSUE		IAEA	JRC-NETWORK	JRC-INTERNAL PROJECT	COMMENT	REF
IRRADIATION EMBRITTLEMENT	IMPROVED STEELS	CRP-3 A			FINISHED 199X- CD 2004	(1.1)
	EFFECT OF Ni	CRP-6 (Ni) A	AMES/ATHENA WP5 C	PARTICIPATES IN IAEA CRP	EXPERIMENTS FINISHED, TECDOC-2004	(1.2)
	SYNERGISM Ni-Mn-Si	CRP - ? A	AMES/ATHENA WP5 C	MODEL STEELS REALISTIC WELDS A	PROPOSED BY TWG LMNPP, POTENTIAL CO-OPERATION IAEA-JRC	(1.3)
	MECHANISMS UNDERSTANDING		AMES/ATHENA WP5 WORKSHOP C		DISSEMINATION IN IAEA SPM	(1.4)
	SYNERGISM OF AGEING MECHANISMS		AMES/ATHENA WP6 WORKSHOP C		DISSEMINATION IN IAEA SPM	(1.5)
	ANNEALING + RE-EMBRITTLEMENT	RRE WWER-440 WELD EMBRITTLEMENT, ANNEALING AND RE-EMBRITTLEMENT A	AMES/ATHENA WP4 STATE-OF-THE-ART REPORT, WORKSHOP B,C	PRIMAVERA	TECDOC(NSNI)	(1.6)
	SMALL SPECIMENS	CRP-4 A		PARTICIPATES IN IAEA CRP	TECDOC	(1.7)
MECHANISM/ISSUE		IAEA	JRC-NETWORK	JRC-INTERNAL PROJECT	COMMENT	REF

IRRADIATION EMBRITTLEMENT	WWER-440 TREND CURVES	CRP-7 (IAEA DB WWER-440) GUIDELINES **D**		PARTICIPATES IN IAEA CRP	TECDOC	(1.8)
	EXCHANGE OF INFORMATION	SPECIALISTS´ MEETING 05/2004 **C**	TRAINING COURSE 12/2003 **C**	JOINT JRC		(1.9)
	CLADDING		ATHENA WP6 **B**			(1.10)
	DATABASE – SURVEILLANCE + RESEARCH	SUPPORT FOR CRP-7, MASTER CURVE GUIDELINES etc **C.**		PARTICIPATES WITH RESEARCH DATA		(1.11)
	REFERENCE STEEL JRQ	TECDOC **D**			REVISION NEEDED INCL. DATA FROM CRP-3,4,5	(1.12)
	REFERENCE STEEL VVER-1000	TECDOC NEEDED	JRC-STORE **D**		PREPERATION BASED ON CERTIFICATE, JRC DATA + CRP-Ni	(1.13)
REACTOR DOSIMETRY		TC ON LR-0 TC ON ATTENUATION **A**	AMES **C**			(1.14)
CORROSION	Ni-BASED ALLOYS	SM MEETINGS **C**	AMALIA **A**			(1.15)
	OTHER TYPES	SM MEETINGS **C**				

MECHANISM/ISSUE		IAEA	JRC-NETWORK	JRC-INTERNAL PROJECT	COMMENT	REF
INTEGRITY	MASTER CURVE APPLICATION	*CRP-5* *TECDOC* **A**	ATHENA WP3 **C**	PARTICIPATES IN IAEA CRP		(1.16)
	MASTER CURVE GUIDELINES	TECDOC (RESULTING FROM CRP-5) **D**	ATHENA WP3 GUIDE **D**	PARTICIPATES		(1.17)
	FRACTURE TOUGHNESS PREDICTION	CRP-8 **A,D**	ATHENA WP3, WP4,5 **C**		NEW PROPOSED CRP-POTENTIAL CO-OPERATION WITH JRC	(1.18)
	STRUCTURAL INTEGRITY ASSESSMENT PROCEDURE	CRP-9 **A,D**	NESC **C**		NEW PROPOSED CRP-POTENTIAL CO-OPERATION WITH JRC	(1.19)
	DISSIMILAR WELD		NESC **C**			(1.20)
	CLADDING		NESC ATHENA WP6 **B**			(1.21)
	PTS	TECDOC **B** IAEA GUIDELINES FOR WWER RPVs (REV.NSNI) **D**	NESC **C**	PARTICIPATES IN TECDOC		(1.22)
	P-T CURVES					(1.23)

COMMENT:

ATHENA = 5FP = TILL 10/2004
AMES = NETWORK
BOTH FOR INFORMATION EXCHANGE ETC.

CATEGORIES:

A - EXPERIMENTAL/NUMERICAL CRP / RESEARCH
B - STATE-OF-THE-ART REPORT
C - COLLECTION /DISSEMINATION OF RESULTS
D - GUIDELINES

REFERENCES

1.1 CRP-3 – "Optimizing RPV Surveillance Programmes and Analyses"- experiments for characterisation of irradiation embrittlement of RPV steels by Charpy impact and static fracture toughness testing. Study of the effect of phosphorus, copper and nickel content in steels and welds. Provision and preliminary characterisation of the IAEA Reference Steel JRQ for further study and use in national and international programmes (surveillance and research).
- *Final Report prepared, will be distributed on CD within the CRP participants and TWG members*

1.2 CRP-6 – "Mechanism of Ni effect on radiation embrittlement of RPV materials". Experiments finished in 2002, preliminary results obtained.
- *Final analysis of data and Draft Final Report - 03/2004 (Invitation of experts)*

1.3 CRP-x - "Synergism of Ni-Mn-Si effects in irradiation damage in RPV steels (both PWR an d WWER)"
Proposal for CRP prepared based on preliminary results from CRP-6. JRC will start study of Model Steels (effect of Ni + Mn+Si in reduced volume and matrix) by their characterisation.
- *JRC is proposing to share these limited number and volume of materials in a co-ordinated project that could serve as a beginning for the IAEA CRP with the full variety (matrix) of proposed materials. JRC will initiate a Kick-off meeting for this potential co-operation project in Spring 2004. JRC is preparing a further project on Radiation Embrittlement of Realistic Welds*

1.4 "Mechanism Understanding" = WP 5 within the activity of ATHENA/AMES
- *Potential exchange of information in the IAEA SPM and by ATHENA Workshop*
- *IAEA TRS on "Neutron Irradiation Embrittlement of LWR RPVs" in finalization, will be published in 2004*

1.5 "Synergism of Ageing Mechanisms" = WP 6 within the activity of ATHENA/AMES
- *Potential exchange of information in the IAEA SPM and by ATHENA Workshop*

1.6 Round Robin Exercise on "WWER-440 Weld Metal Irradiation Embrittlement, Annealing and Re-Embrittlement", co-ordinated by IAEA NSNI.
- *Draft Final Report prepared, finalization in 2004*
- *State-of-the-art Report in preparation within the AMES/ATHENA WP4. Exchange of results in ATHENA Workshop and IAEA SPM*

1.7 CRP-4 - "Assuring Structural Integrity of RPVs"– application of static fracture toughness testing by small size specimens
- *Final TECDOC prepared, will be published in 2004*

1.8 CRP-7 – "Evaluation of Radiation Damage of WWER-440 RPVs using IAEA DB on RPV Materials"
- Draft TECDOC "Guidelines for Prediction of Radiation Embrittlement of Operating WWER-440 RPVs" in preparation, will be published in 2004

1.9 Joint IAEA-JRC SPM "Radiation damage and mitigations in RPVs and RPV Internals", May 24-27, 2004, Russia
- *Dissemination and Exchange of information between IAEA and ATHENA/AMES activities by Proceedings*

1.10 State-of-the-art Report on RPV cladding properties (only literature survey) as AMES Report within ATHENA WP6
- *Dissemination of information on ATHENA Workshop and by distribution of AMES Report*

1.11 IAEA International Database on Reactor Pressure Vessel Materials" – two parts: Surveillance and Research data
- *Used as bases in CRP-7, data from all IAEA CRPs beginning from CRP-3 are automatically included and used for results evaluation*

1.12 IAEA TECDOC 1230 (Characterisation of the IAEA Reference Steel JRQ) should be updated to include data from CRP-3, 4 and 5 as well as by trend curves of changes in mechanical properties due to irradiation

1.13 JRC will prepare AMES Report on Characterisation of IAEA WWER-1000 Reference Steel (2004-2005)

1.14 Reactor dosimetry is an important part of all material irradiations but no special activity is planned within the TWG
Two IAEA RER projects related to this field:
- "Evaluation of Radiation Damage Attenuation through RPV Wall" – in progress
- "Neutron field measurements in the vicinity of WWER-1000 RPV modelled in LR-0 reactor" – finished, TECDOC prepared for publication
- *Results should be discussed and disseminated during SPM Meetings*

1.15 Mainly exchange of information in special IAEA SPM meetings

1.16 CRP-5 – "Surveillance Programme Results Application to RPV Integrity Assessment". Experiments finished, analysis, structure of the TECDOC - *Final Report established and authors agreed, Draft TECDOC Report to be prepared in 2004*

1.17 Draft IAEA "Guidelines for Application of the Master Curve Approach to Reactor Pressure Vessel Integrity" prepared; final meeting in 12/2003, TECDOC to be issued in 2004
ATHENA "Guidelines on Master Curve Application" are being developed within the WP3 with respect to the IAEA Guidelines and will serve as a European Guide.

1.18 New proposed CRP-8 on "Comparison of Fracture Toughness Predictions on the Basis of Master Curve and Local Criteria Approaches" will contain other aspects of Master Curve application – biases between different type of specimens, dynamic/arrest tests etc. Invitation for participation under preparation (RCM – 06/2004)
   - *Co-operation with experts group within NESC (JRC)*

1.19 New proposed CRP-9 on "Structural Integrity Assessment Procedure" will be concentrated on generic recommendations/guidelines harmonized for LWR and WWER type reactors
   - Preparation of the first Consultants meeting(CS): proposal for direction and role of participants
   - *Co-operation with experts group within NESC and ENIQ (JRC)*

1.20 Integrity of dissimilar welds have been recognized and important but no special activity is foreseen
   - *Exchange of results between IAEA and JRC experts in IAEA SPM meetings*

1.21 Cladding role was recognized as important for RPV integrity, mainly during PTS regimes. Its effects should be incorporated in the CRP-9 activity
   - State-of-the-art Report on RPV cladding properties (only literature survey) as AMES Report within ATHENA WP6
   - *Dissemination of information by distribution of AMES Report*

1.22 Draft TECDOC on "Impact of PTS on RPV Integrity" should be revised and updated in 2004-2005 (with participation of expert group of NESC/JRC)

1.23 Allowable pressure-temperature limit curves – should be included into activity of CRP-9

PTS – PRESSURIZED THERMAL SHOCK

DESCRIPTION/ISSUE		COUNTRIES STANDARD	IAEA	JRC - NETWORK	JRC – Internal Project	COMMENTS	REF
DESCRIPTION OF PTS	Western PWR		TECDOC	AMES NESC I & II			(2.1)
	WWER		IAEA Guidelines				(2.2)
PTS MODELLING	Deterministic Approach		TECDOC				(2.1)
	Probabilistic Approach		TECDOC				(2.2)
SELECTION OF PTS TRANSIENTS	WESTERN PWR		TECDOC				(2.1)
	WWER		IAEA Guidelines				(2.2)
THERMAL HYDRAULIC ANALYSIS	WESTERN PWR		TECDOC				(2.1)
	WWER		IAEA Guidelines				(2.2)

DESCRIPTION/ISSUE		COUNTRIES STANDARD	IAEA	JRC - NETWORK	JRC – Internal Project	COMMENTS	REF
FRACTURE MECHANIC. ANALYSIS	WESTERN PWR		TECDOC	NESC I - II & IV			(2.1)
	WWER		IAEA Guidelines				(2.2)
REGULATION on PTS	Western PWR	10 CFR 50.61 RCCM KTA					(2.3)
	WWER	PNAEG VERLIFE					
SCREENING CRITERIA	Western PWR	10 CFR 50					(2.3)
DEFECT or FLAW DISTRIBUTION			TECDOC	ENIQ			(2.4)
NDE - ISI	WESTERN PWR	ASME XI RSEM KTA	TECDOC	ENIQ			(2.4) and (2.5)
	WWER	PNAEG		ATHENA			
MATERIAL ASPECT	WESTERN PWR		IAEA Master curve Guidelines CRP 8 & 9			TECDOC	(2.1)
	WWER		IAEA Master curve Guidelines CRP 8 & 9	ATHENA		TECDOC	(2.2) (2.6)

DESCRIPTION/ISSUE		COUNTRIES STANDARD	IAEA	JRC - NETWORK	JRC – Internal Project	COMMENTS	REF
SUPPORTING EXPERIMENTS	WESTERN PWR			NESC I & II			(2.1)
	WWER						(2.2)
MITIGATION	WESTERN PWR and WWER		TECDOC	AMES			(2.1) (2.2)
OVERALL SITUATION	WESTERN PWR		TECDOC	AMES - NESC		Revision needed	(2.1)
	WWER		IAEA Guidelines	AMES		Revision needed	(2.2)

DETAILS OF REFERENCE

2.1 . DRAFT TECDOC TO BE UPDATED, JRC WILL PARTICIPATE

2.2 . WWER – IAEA GUIDELINES IS UNDER REVISION

2.3 . REGULATION IN DIFFERENT COUNTRIES DEPENDS ON DESIGN CODES AND STANDARD AND APPROACH APPLIED

2.4 . CROSS CO-OPERATION WITH ENIQ

2.5 . DEPEND OF POLICY APPLIED IN COUNTRIES

2.6 . RPV 1.17

Knowledge management

TOPICS	JRC	IAEA	Comment	Reference
Store expertise and expert judgment		IAEA Nuclear Energy Department has activities on the subject		

Training/ Workshop	- EUROCOURSE organised on different issues linked to Safe and Secure Energy Supply (3S policy) for young generation - *NPP PLIM* SAFELIFE *Eurocourse for young trainees coming from Associated Countries, relying on contribution of external and JRC experts:* o Neutron embrittlement and surveillance programmes (AMES team) o Structural integrity assessment (NESC team) - - Workshops on Ageing based on Tacis/PHARE experience for Associated Countries - Workshops organised by different projects (e.g. ATHENA Master Curve, ...)	- WS on Advanced NDE:ET & UT methods, data analysis, criteria, DMS, demo, upper head - WS on Practice of ISI qualification and RI-ISI - WS on Ageing, and residual lifetime assessment for primary components - WS on Monitoring & diagnosis technology: expert data analysis, integration into PM - WS on T/H: SG T/H, Nozzle Thermal shock - WS on Refuelling feeder: Inspection and maintenance - WS on Improvement of management and introduction of Quality Systems - WS on Residual lifetime evaluation and ageing management - WS on Decommissioning - WS on Risk Based/Informed Applications in Maintenance and outage management - WS on Optimisation of service life of operating NPPs (2 week training course) - WS on Master Curve testing results application to RPV materials - WS on Power up rating with PLiM - Training Course - Water Chemistry	Invite JRC expert to introduce EC programme in IAEA regional Eastern Europe TC project (RER project). Invite SC of TWG in JRC training program to introduce IAEA programe	

TOPICS	JRC	IAEA	Comment	Reference
Accessibility to documents	AMES, NESC, ENIQ reports available from JRC web site cost-free CIRCA Web-based document platform for the management of ATHENA WPs (restricted) *Plans to build an open ATHENA website relying on JRC ODIN web system*	New documents (TECDOC, Safety series, etc.) since 1998 are accessible on the IAEA web-site cost-free.		
Accessibility to data	*Experimental results Databases accessible on internet (Restricted)* o *Alloys-DB* o *COR-DB* *The databases can be also used for central storage of data coming from new projects*	Local access to databases with previous authorization (only for members).	JRC Data mining technology available to IAEA.	
Accessibility to radiation damage prediction tools	REVE (RPV-1) PERFECT IP (RPV-2, INTERN-1) Users' Group (*Restricted*)	Potential partnership of IAEA in PERFECT's Users' Group		
Information exchange IAEA-JRC	Joint workshops (ENIQ, SENUF, ...) Hold regular joint meetings		Potential for continuing information exchange	