

MEMORANDUM TO: Patrick Baranowsky, Chief
Operating Experience Risk Analysis Branch
Division of Risk Analysis and Applications
Office of Nuclear Regulatory Research

FROM: Dale Rasmuson
Operating Experience Risk Analysis Branch
Division of Risk Analysis and Applications
Office of Nuclear Regulatory Research

Bennett Brady
Operating Experience Risk Analysis Branch
Division of Risk Analysis and Applications
Office of Nuclear Regulatory Research

SUBJECT: SUMMARY OF EPIX/RADS MEETING, FEBRUARY 7 AND 8, 2001

Dale Rasmuson and I met with EPIX (Equipment Performance and Information Exchange) System staff at INPO Headquarters in Atlanta on February 7 and 8. Jim Maddox (TVA), and Dan Jensen (INEEL) also attended. The attendees and agenda for the meetings are shown in Attachments 1 and 2.

The purpose of this working meeting was to discuss issues related to more efficient import and use of EPIX data in the Reliability and Availability Data System (RADS), NRC's data system for using data from EPIX and other sources such as LERs and Monthly Operating Reports to estimate PRA parameters. NRC also learned more about changes in EPIX 4.0, the web-based reporting system scheduled to be released in September 2001. Of special interest to NRC staff using data for risk informed applications was a new proposal for reporting reliability data (demands and run hours) to EPIX that would provide the demands that NRC needs for PRA and risk-informed applications and would require considerably less resources for industry to report than current reporting requirements. INPO also reported on several initiatives that they and industry are undertaking to provide more consistent EPIX data.

- New proposal for reporting reliability data
 - Currently, utilities are required to report reliability data to EPIX categorized as test and non-test demands for the key components in the SSPI systems. As the staff reported to the Commission in SECY 97-101, this categorization of demands does not provide all the data that NRC needs for risk-informed and PRA applications. NRC must do "workarounds" for the needed data. This categorization also has resulted in inconsistent reporting in EPIX that makes it difficult to estimate demands. Utilities, particularly those using electronic

“demand counters,” have found it burdensome to review maintenance work orders and operator logs to separate demands into nontest and test.

- In July 1999, NRC requested that ESF demands and ESF test demands be reported to EPIX. These are the categories of demands needed in risk models for computing the demand failure probability and the operating failure rate. Industry has not yet made a commitment to require the reporting of these demands to EPIX.
- At our meeting Glen Masters presented an alternative proposal for reporting reliability data to EPIX. This proposal would:
 - Provide more of the demand data that NRC needs for risk-informed activities and for other PSA/PRA practitioners
 - Provide data for component engineers determining equipment service life
 - Eliminate the need for NRC workarounds for ESF and ESF test demands, and
 - Be less expensive for industry to collect than the current reporting requirements.
- INPO estimates that this would reduce industry’s quarterly reporting cost for demand and operating hour data reporting by 75 percent.
- NRC will coordinate comments on the proposal with the RADS Coordination Group and other reliability data users and get NRC Branch level and regional concurrence on the proposal, modified as necessary.
- Comparison studies to improve consistency in reporting and coding
 - INPO and the utilities will complete, at the end of February, a scoping comparison study to insure the use of a consistent set of standard common component names for the major risk-significant components across industry. This will improve the automation of importing data and use of the data for analysis in RADS.
 - Forty of the 67 utilities have completed the review and addition of engineering data on these risk-significant components.
 - INPO/industry will shortly be undertaking an expanded data quality study of reliability data (demands and run hours) reporting that will improve the consistency of estimating equipment reliability in RADS. This will be completed by the end of August 2001.
 - The June 2000 meeting also discussed other data quality and coding consistency issues that are needed for automated parameter estimation in RADS. INPO reported on the progress they have made each quarter on resolving these issues. NRC staff and contractors have also noted improvements in the quality of EPIX data.

- Failure data
 - EPIX has nearly 40 failure coach reports (computer QA checks of data entry.)
 - The entries for the device failure mode field in EPIX are often engineering failure modes such as “high output current or voltage,” “external leakage” rather than PRA failure modes such as “fail to operate,” “fail to close.” For accurate estimation of the demand failure probability and the operating failure rate for PRAs, failures need to be assigned to the PRA failure mode. NRC has developed a table for translating EPIX engineering failure modes into PRA failure modes in RADS. INPO has also been working with NRC to devise a fixed set of EPIX device failure modes that will translate correctly. NRC agreed to review some tables showing combinations of the EPIX failure mode, and failure discovery fields (Attachment 3). NRC will provide input on combinations that seem invalid or inconsistent. This will be used to develop a failure coach report that will better insure that EPIX failure modes are translating into the PRA failure modes in RADS.
 - The meeting also discussed the need to distinguish between demands and failures of the auto start function and manual starts. For many failure modes, PSA/PRA modes need both the probability of failure and the probability of failure to recover given a failure, e.g., the probability of failure to auto-start and the probability of failure to start manually given a failure to auto-start. INPO and the utilities will develop a proposal to report auto start demands and failures and manual start demands and failures in the least burdensome manner to EPIX. This will be presented at the next meeting of the EPIX Ad Hoc Working Group.
- Unavailability
 - EPIX 4.0 will contain fields for reporting planned and unplanned unavailability.
 - It will also provide the capability of linking components to their maintenance rule train or function. This linkage is necessary for RADS to implement the estimation of component unavailabilities.
 - The fault exposure start date will be reported as part of the failure report.
- Action items for INPO
 - Revise proposed rule for reliability data reporting per discussion at meeting and provide to NRC (done).
 - Develop a proposal for capturing auto-start demands and failures and manual starts and failures in EPIX.
 - Provide NRC EPIX data with the fields as agreed to at the meeting in future data submittals.

- Action items for NRC
 - Provide reliability data reporting proposal to RADS Coordination Group for comment. (Done)
 - Get NRR and RES branch level concurrence on proposed guidance for ESF definitions and NRC plans for workaround data and provide to INPO. - 4/13/01
 - Mark up tables of PSA failure, failure mode, and discovery fields as to apparent inconsistencies, provide comments on failure mode fields and return to INPO. - 4/13/01

Attachments: As stated

cc: J. Bishop, INPO
G. Masters, INPO

MEMORANDUM DATED: / /01

SUBJECT: SUMMARY OF EPIX/RADS MEETING, FEBRUARY 7 AND 8, 2001

Distribution:

OERAB RF	SSanders, NRR
DRAA RF	DSkeen, NRR
File Center	SWScott, NRR
PDR	JDWilcox, NRR
NRC RADS Coordination Group	MPohida, NRR
JFlack, RES	AMadison, NRR
AThadani, RES	WLanning, RGN-I
MFederline, RES	ABlough, RGN-I
TKing, RES	TShedlosky, RGN-I
SBahadur, RES	JTrapp, RGN-I
MCunningham, RES	CCasto, RGN-II
MMarshall, RES	LPlisco, RGN-II
NSiu, RES	RBernhard, RGN-II
HHamzehee, RES	WRogers, RGN-II
PO'Reilly, RES	JGrobe, RGN-III
BBoger, NRR	GGrant, RGN-III
GHolahan, NRR	SBurgess, RGN-III
DMatthews, NRR	MParker, RGN-III
FGillespie, NRR	AHowell, RGN-IV
RBarrett, NRR	KBrockman, RGN-IV
TMarsh, NRR	WJones, RGN-IV
TQuay, NRR	JShackelford, RGN-IV
PWilson, NRR	

DOCUMENT NAME: A:\FEB_MEETING.WPD

OAR in ADAMS? (Y or N) Y

Template No.: RES-006

Publicly Available? (Y or N) Y

ADAMS ACCESSION NO.: ML010720381

DATE OF RELEASE TO PUBLIC: 3/10/01

SENSITIVE? N

To receive a copy of this document, indicate in the box: "C" = Copy w/o/encl "E" = Copy w/encl "N" = No copy

OFFICE	OERAB		OERAB		OERAB		OERAB	
NAME	BBrady		DRasmuson		SMays		PBaranowsky	
DATE	/ /01		/ /01		/ /01		/ /01	

OFFICIAL RECORD COPY
(RES File Code) RES 2C-3

EPIX/RADS INTERFACE MEETING

February 7 - 8, 2001

Attendees

Joe Bishop	INPO
Bennett Brady	NRC
George Felgate	INPO
Kim Hulsey	INPO
Dan Jensen	INEEL
Neil Lossing	INPO
Jim Maddox	Watts Bar
Glen Masters	INPO
Dale Rasmuson	NRC
Rich Stone	INPO
Gary Welsh	INPO

	<p style="text-align: right;">NRC/INPO Meeting Agenda February 7-8, 2001 Room 130</p>
February 7	
0800	Welcome / Introductions – Gary Welsh / Jim Maddox
0830	Review Agenda / Review Actions from June 2000 Meeting – Joe Bishop <ul style="list-style-type: none"> • Results of scoping comparison study • Status of inputting missing engineering data
0930	Failure Data– Glen Masters <ul style="list-style-type: none"> <input type="checkbox"/> Ensuring usability of failure modes in RADS and for PSA/PRA and reliability applications <input type="checkbox"/> Guidance for failure mode assignment and PSA/ESF failures and discussion of QA related measures <input type="checkbox"/> Relationships among failure mode, PSA failure, and failure discovery fields. Steps to assure coding consistency.
1130	Lunch
1230	Demands and Run Hours Data– Bennett Brady <ul style="list-style-type: none"> • RADS probability of failure on demand and failure rate calculations • Current RADS demands (and run hours) estimation • Future RADS categorization

1330	<p>Table Structure Changes Expected in EPIX 4.0 Revision, to include: - Glen Masters</p> <ul style="list-style-type: none"> • Plans for unavailability fields and linking of components to trains in EPIX 4.0 • Linking of subcomponents and supporting components to key components
1600	Adjourn
February 8	
0800	Review February 7 Results – Joe Bishop
0830	<p>Reliability Data Quality Resolution – Neal Lossing / Glen Masters</p> <ul style="list-style-type: none"> • Review of data quality issues discussed at last EPIX/RADS interface meeting <p>Status of resolution; Future dates for data quality improvements</p>
1130	Lunch
1230	Open Discussion
1500	Adjourn

ROUTING AND TRANSMITTAL SLIP					Date 2/28/01	
TO: (Name, office symbol, room #, building, agency/post)					Initials	Date
1. B. Brady - Concur/Signature						
2. D. Rasmuson - Concur/Signature						
3. S. Mays - Concur						
4. P. Baranowsky - Concur						
5.						
6.						
7.						
8.						
9.						
10.						
	Action		File		Note and Return	
	Approval		For Clearance		Per Conversation	
	As Requested		For Correction		Prepare Reply	
	Circulate		For Your Information		See Me	
	Comment		Investigate	X	Concurrence/Signature	
	Coordination		Justify			
REMARKS SUMMARY OF EPIX/RADS MEETING, FEBRUARY 7 AND 8, 2001						
FROM: (Name, org. symbol, Agency/Post)					Room # - Bldg.	
					Phone #	

