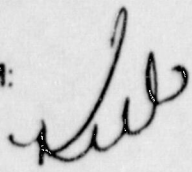




UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

April 1, 1998

MEMORANDUM TO: Edmund J. Sullivan, Acting Chief  
Materials and Chemical Engineering Branch  
Division of Engineering

FROM:  Keith R. Wichman, Chief  
Section A  
Materials and Chemical Engineering Branch  
Division of Engineering

SUBJECT: MEETING SUMMARY FOR MARCH 18, 1998 MEETING WITH  
OWNERS GROUP REPRESENTATIVES AND NEI REGARDING  
INDUSTRY MAINTENANCE OF THE REACTOR VESSEL INTEGRITY  
DATABASE

On Wednesday, March 18, 1998, members of the U.S. Nuclear Regulatory Commission (NRC) staff participated in a public meeting with owners group members, a Nuclear Energy Institute (NEI) representative and other industry officials at the NRC's Rockville, MD, Headquarters to discuss industry maintenance of the reactor vessel integrity database (RVID). Attachment 1 is a list of the meeting participants. Attachment 2 is the NRC staffs' presentation view graphs. Attachment 3 is the industry questions and NRC answers regarding maintenance of the RVID. Each question in Attachment 3 was discussed at the meeting.

NRC management opened the meeting by stating that maintenance of data for reactor pressure vessel (RPV) integrity analyses is the responsibility of the industry. In addition, management noted that the RVID was developed by the staff since, at that time, no effort had been initiated by the industry to consolidate the vast amounts of data.

The RVID Technical Monitor gave a brief overview of the major features of the database since it has been transferred to Microsoft Access™ format. The meeting was then opened to discussion of the questions in Attachment 3.

The following issues were raised during discussion of the questions:

Since the RVID is mainly a tool for reviewing the history related to an action or request, there was discussion regarding whether or not it would need to meet the criteria described in 10 CFR 50, Appendix B "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." An Owners Group representative stated that there would be a big difference in cost if the database had to meet Appendix B as opposed to simply verifying the data for traceability purposes. Although the group agreed that the database would probably not have to meet Appendix B requirements, this issue was identified as an item for further discussion.

CONTACT: Andrea D. Lee, EMC/DE  
415-2735

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PDR

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The representative from the Electric Power Research Institute (EPRI) noted that bench-marking the industry database (RPVDATA) with the RVID would be difficult since they both have different types of information. RPVDATA contains docketed information from RPV analyses which is compiled in a convenient manner to allow queries for comparison purposes. Some of the RVID summary reports are contained as a subset of RPVDATA. RPVDATA does not contain any calculational procedures. The RVID performs the Regulatory Guide (RG) 1.99, Revision 2 calculations using docketed information which makes it a valuable tool to perform staff evaluations. The situation could occur where the databases have two different values for one material that should remain different, with sufficient explanation of the differences.

The staff highlighted the importance of identifying who in industry would maintain and update the database. There were questions regarding how often, and in what circumstances, proposed changes would need to be submitted to the NRC. There were also questions on the NRC staff's proposed 60 day negative consent for changes. Several scenarios were discussed (e.g. updates would be submitted to the NRC by the licensee with a copy to the industry individual who is responsible for updates, the NRC agrees by negative consent, then changes are made by the industry after the 60 day negative consent period). For cases where new data are submitted with an evaluation, the safety evaluation report (SER) will need to identify the specific data that need to be updated in the database. These types of details will need to be more precisely identified.

Since there is no formal regulatory mechanism for the transfer of the maintenance of the RVID to the industry, an Owners Group representative asked what would be the legal requirement for the industry to continue these updates, for example, ten years from now. This issue needs further discussion, however, a Memorandum of Understanding (MOU) would be a possible mechanism.

A method for tracking data changes to the pressure-temperature limits report (PTLR) will also need to be developed since PTLRs do not need to be submitted to the NRC if the methodology does not change. This was identified as an item for further discussion.

A conflict of interest does not exist when considering the transfer of the maintenance function of the RVID from the NRC to the industry. However, this conclusion may need to be re-visited if it is determined that the database must meet 10 CFR 50 Appendix B requirements.

Another item for further discussion is whether or not the database would continue to be posted on the World Wide Web.

The EPRI representative suggested the development of a users group or steering committee of individuals who would discuss upgrades of the database. These upgrades would be actual structural changes as opposed to data changes or updates.

The staff closed the meeting by asking the industry what it would need in order to take over the RVID. The NEI representative and some of the Owners Group representatives stated that the individuals at the meeting do not have the authority to commit the entire industry, but that they could take the issue to their members for discussion. The group agreed that more meetings would be needed to define protocol and possibly work out an MOU.

The staff plans to update the RVID once it has reviewed licensee responses to the Generic Letter 92-01, Revision 1, Supplement 1 requests for additional information (RAIs). These RAIs are expected to be issued within the next few months. The staff plans to complete the RVID update and release the database to the industry by the end of 1999.

The general consensus among the participants was that the staff's proposal for transferring the maintenance of the RVID to the industry is reasonable, and will be discussed with higher levels of management. However, the industry will first need an estimate of how much the transfer would cost before making a commitment. The NEI representative estimated that it would take a few weeks to respond to the staff regarding the industry's decision. He committed to contact NRC management late the week of March 23 with an estimate of when the staff can expect an answer.

- Attachments: 1. Meeting Participants  
 2. View Graphs  
 3. Industry Questions/NRC Answers Regarding Maintenance of the RVID

cc: Kurt Cozens, NEI

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 JMedoff MMayfield EHackett EMCB R/F Meeting Participants (via email)

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NAME	ALee <i>AL</i>		BElliot <i>BJE</i>	KRWichman <i>KRW</i>		EJSullivan
DATE	<i>3/25</i> /98		<i>3/25</i> /98	<i>3/25</i> /98		<i>4/1</i> /98

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MEETING PARTICIPANTS

MEETING TO DISCUSS INDUSTRY MAINTENANCE OF THE REACTOR VESSEL  
INTEGRITY DATABASE

MARCH 18, 1998

NAME	ORGANIZATION
Andrea Lee	NRC/NRR/DE
Bob Hardies	BGE
Stan Rosinski	EPRI
Bob Clark	ANO
Keith Wichman	NRC/NRR/DE
Tim Herrmann	AmerenUEWOG
Kurt Cozens	NEI
Dana Covill	GPU Nuclear/BWRVIP
Noel Dudley	ACRS
Jenny Weil	McGraw-Hill
Ed Wenzinger	NUS
James Medoff	NRC/NRR/DE
Meena Khanna	NRC/NRR/DE
Altheia Wyche	SERCH Licensing/Bechtel
Lynn Conner	Doc-Search Associates
Allen Hiser	NRC/NRR/DE
Barry Elliot	NRC/NRR/DE
Simon Sheng	NRC/NRR/DE

ATTACHMENT 1

**NRC/INDUSTRY MEETING ON MAINTENANCE  
OF THE REACTOR VESSEL INTEGRITY  
DATABASE (RVID)**

**BRIEF OVERVIEW OF RVID FEATURES**

**March 18, 1998**

**ANDREA D. LEE  
MATERIALS ENGINEER  
DIVISION OF ENGINEERING  
MATERIALS AND CHEMICAL ENGINEERING  
BRANCH  
(301) 415-2735**

**ATTACHMENT 2**

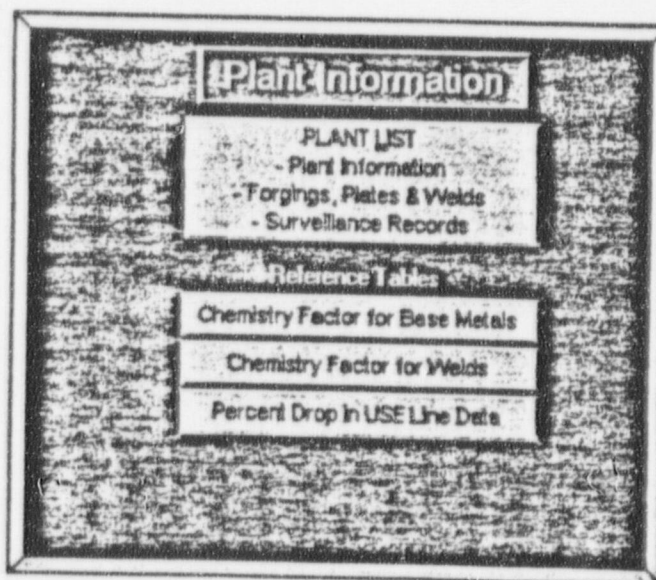
## Section 3 - VIEWING DATA

### Main Screen

After starting the RVID2 program and logging on, the Main Screen will appear. The left hand side of this screen has four buttons:



- Plant Information - This button activates a sub-screen with buttons leading to plant information and reference table screens.



## Plant List Screen

Clicking the "Plant List" button brings up the plant list screen. This screen displays a list of all plants in the RVID2 program. You may sort the list in ascending order by clicking on the column title buttons.

- Docket number
- Plant Name
- Manufacturer
- NSSS Designer
- EOL Date

The default sort order is by plant name. The button that is currently controlling the plant list sort order is, shown in red.

DOCKET	PLANT NAME		MANUFACTURER	NSSS DESIGNER	EOL DATE
50-318	ARKANSAS NUCLEAR 1	DETAIL	BABCOCK & WILCOX	B&W	05/20/2014
50-368	ARKANSAS NUCLEAR 2	DETAIL	COMBUSTION ENGINEERING	C-E	07/17/2018
50-334	BEAVER VALLEY 1	DETAIL	COMBUSTION ENGINEERING	WESTINGHOUSE	01/29/2016
50-412	BEAVER VALLEY 2	DETAIL	COMBUSTION ENGINEERING	WESTINGHOUSE	05/27/2027
50-155	BIG ROCK POINT	DETAIL	BABCOCK & WILCOX	GE	05/31/2000
50-456	BRADWOOD 1	DETAIL	BABCOCK & WILCOX	WESTINGHOUSE	10/17/2026
50-457	BRADWOOD 2	DETAIL	BABCOCK & WILCOX	WESTINGHOUSE	12/18/2027
50-259	BROWNS FERRY 1	DETAIL	BABCOCK & WILCOX	GE	12/20/2013
50-260	BROWNS FERRY 2	DETAIL	BABCOCK & WILCOX	GE	06/28/2014
50-296	BROWNS FERRY 3	DETAIL	BABCOCK & WILCOX	GE	07/02/2016
50-325	BRUNSWICK 1	DETAIL	CHICAGO BRIDGE AND IRON	GE	09/08/2016
50-324	BRUNSWICK 2	DETAIL	CHICAGO BRIDGE AND IRON	GE	12/27/2014
50-454	BYRON 1	DETAIL	BABCOCK & WILCOX	WESTINGHOUSE	10/31/2024
50-455	BYRON 2	DETAIL	BABCOCK & WILCOX	WESTINGHOUSE	11/06/2026
50-483	CALLAWAY 1	DETAIL	COMBUSTION ENGINEERING	WESTINGHOUSE	10/18/2024
50-317	CALVERT CLIFFS 1	DETAIL	COMBUSTION ENGINEERING	C-E	07/31/2014
50-318	CALVERT CLIFFS 2	DETAIL	COMBUSTION ENGINEERING	C-E	08/31/2016
50-413	CATAWBA 1	DETAIL	ROTTERDAM DOCKYARD	WESTINGHOUSE	12/06/2024

Record: 1 of 110

NRC Docket Number for this plant: \_\_\_\_\_

## FORGINGS, PLATES, WELDS

Clicking this button (on the "Plant Detail" screen) displays the "FORGINGS PLATES AND WELDS FOR THIS PLANT" sub-screen. This is a scrollable summary sub-screen that when the "DETAIL" button for a particular record is clicked, will show all information related to that component record in the "Forging Plates and Welds Detail" screen.

## Forgings, Plates, and Welds Detail Screen

This screen displays information for the particular forging, plate, or weld that you have selected from the "Forging, Plates, Welds" sub-screen in the "Plant Detail" screen. The information consists of input data and the resultant calculated data for RTpts @ EOL (for PWR plants) or RTndt @ EOL (for BWR plants), USE @ EOL (1/4T), and any notes about the material.

Contents on the screen dynamically change depending on the type of material you are currently viewing; i.e., weld specific information does not appear when viewing a forging or a plate.

**Reactor Vessel Integrity Database - [Weld Detail]**

File Edit Help

**Weld Detail** [Navigation Buttons] [Print] [Close]

Plant: **ARKANSAS NUCLEAR 1** Reactor Type: **PWR** Vessel Thickness: **8.43**  
 Docket No: **50-313** Log Date/Time: **7/28/97 5:09:36 PM** Weld ID (generated by system): **572**

**INPUT DATA**

Heat ID: **406L44** Yrs Calc: **32** Location: **0** Orientation: **C**  
 Belline ID: **UPPER/LOWER SHELL CIRC. WELD WF-112** Capsules: **WF-112**  
 Flux Type: **LINDE 80** Heat Wire: **406L44** Flux Lot:  Weld Code: **LINDE 80**

**Chemistry**

Cr	0.310	Ni	0.590
P	0.016	S	0.015

**Value Method**

RTndt(u):	-5.0	B&W GENERIC	±
Fluence(D) EOL:	0.940		
Chem Factor:	176.27		
$\alpha(u)$ :	19.7	ENTER OVERRIDE VALUES, OTHERWISE LEAVE BLANK	
$\alpha(\Delta)$ :			
Margin:			
Limiting Material:	NO		±
Limit USE:		EMA	±

**CALCULATED DATA** [Show Notes]

	Value	Method	
RTndt(u):	-5.0	B&W GENERIC	RTndt(u)
Fluence Factor @ EOL:	0.983	Fluence(D)^(2B-1) log(Fluence(D))	
Chemistry Factor:	176.3	VERRIDE	±
$\Delta$ RTndt @ EOL:	173.3	FFxCF	
$\alpha(u)$ :	19.7	B&W GENERIC	RTndt(u)
$\alpha(\Delta)$ :	14.0	SURVEILLANCE DATA	±
Margin:	48.3	POSITION 2.1 (S) DATA	±
RTpts @ EOL:	216.6	RTndt(u) + $\Delta$ RTndt + Margin	
USE @ EOL (1/4T):	0.567	Fluence (1/4T) @ EOL	
%Drop @ EOL (1/4T):		EMA	

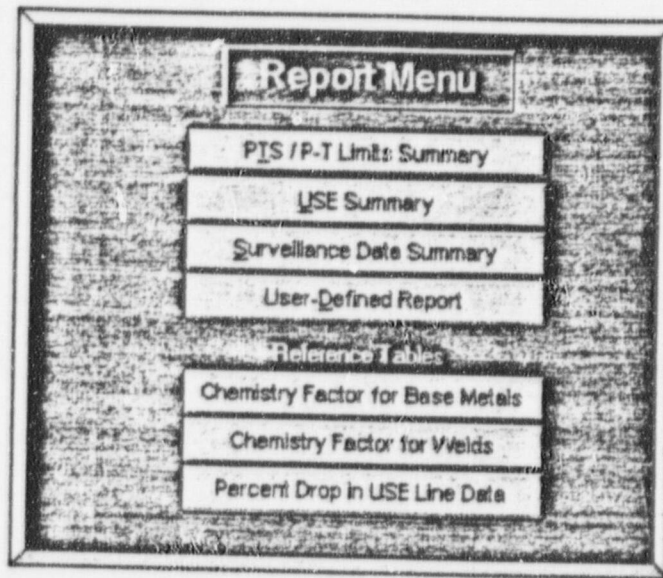
Record 6 of 9 [Navigation Buttons]

Form View [FLTR] [Buttons]

## Section 4 - REPORTS

### Report Menu Screen

The Report Menu sub-screen (on the Main Screen) contains three summary reports, a user defined report (which can be exported to an Excel 3.0 file), and three reference table reports. These reports can be accessed by clicking on the appropriate button.



#### PTS / P-T Limits Summary

This button allows you to preview and print the PTS / P-T Limits Summary for selected plants or all plants. The PTS / P-T Limits report contains plant, beltline, chemistry, heat ID, fluence, RTndt (u), Margin, RT<sub>PT</sub>s data and associated methods for obtaining the data.

#### USE Summary

This button allows you to preview and print the USE Summary report for selected plants or all plants. The USE Summary report contains plant, beltline, chemistry, heat ID, unirradiated USE, USE at EOL, percent drop in USE at 1/4 thickness and associated methods for obtaining the data.

#### Surveillance Data Summary

This button allows you to preview and print the Surveillance Data Summary report for selected plants or all plants. This report displays all data and calculations related to surveillance material.

#### User Defined Report

This button is discussed in detail in the next sub-section

#### Reference Tables

The three buttons under the "Reference Tables" heading, print the specified reference table's data as a report. Please refer to "Section 5 - REFERENCE TABLES" for specific information about each reference table.

## User-Defined Report

This button allows you to define a report showing certain selected criteria and up to 14 data fields sorted in the order that you specify. When this button is activated, a blank form will appear, which will allow you to enter your specific criteria. The selection criteria are discussed below.

**Reactor Vessel Integrity Database - [Query Subjects]**

File Edit Help

### USER-DEFINED REPORT

EXIT RUN QUERY

**SELECTION CRITERIA**  
All data elements in this column will appear in the report

**PLANTS**

Vessel Designer: ALL DESIGNERS

Vessel Fabricator: ALL FABRICATORS

Reactor Type: ALL TYPES

Owner's Group: ALL GROUPS

**FORGINGS, PLATES, AND WELDS**

Materials: ALL MATERIALS  
All kinds if left blank

Base Metal:

Heat Wire:

Flux Type:

**SORT CRITERIA & DATA FIELDS**  
Indicate sort order; 1, 2, 3, etc. The report will include only items in the columns marked for sort order

Use Plant Name as Primary Sort Key

3 %Cu

4 %Ni

%P

%S

5 Chemistry Factor

6 Margin

Fluence @ 1/4"

ID Fluence @ EOL

RTndt(u)

2 RTpts @ EOL

Unirradiated USE

USE @ EOL

1 % Drop in USE

EOL Date

Form View

The User-Defined report contains two major sections: Selection Criteria and Sort Criteria. The fields for these sections are discussed below.

### Selection Criteria

Select the plants and materials you wish to view by choosing the Vessel Designer, Vessel Fabricator, Reactor Type, Owners Group, and Materials (Forgings, Plates, Welds or All). The default choices are All Designers, All Fabricators, All Types, All Groups, and All Materials. Make selections by either clicking on the arrow button to the right of the field to get a drop-down list to choose from, or by highlighting the field and typing the first characters of the parameter you wish to select.

#### PLANTS

**Vessel Designer** - The default selection is ALL DESIGNERS. Other selections are, B&W, C-E, GE, or WESTINGHOUSE.

**Vessel Fabricator** - The default selection is ALL FABRICATORS. Other selections are BABCOCK AND WILCOX, CHICAGO BRIDGE AND IRON, COMBUSTION ENGINEERING, HITACHI, NEW YORK SHIPBUILDING, ROTTERDAM DOCKYARD, or SOCIETE CREUSOT.

**Reactor Type** - The default selection is ALL TYPES. Other selections are PWR, or BWR.

**Owners Group** - The default selection is ALL GROUPS. Other selections are NONE, B&WOG, BWROG, CEOG, or WOG.

#### FORGINGS, PLATES AND WELDS

**Material** - The default selection is ALL MATERIALS. Other selections are FORGINGS, PLATES, or WELDS. If you select FORGINGS or PLATES, only the Base Metal field will appear below. If you select WELDS, only the Heat Wire and Flux Type fields will appear below

**Base Metal, Heat Wire, Flux Type** - The default selection leaves these three fields blank. This will allow the program to include all base metals, heat wire, and flux types. The other options are to select a specific Base Metal, Heat Wire, and/or Flux Type from the drop-down list.

INDUSTRY QUESTIONS/NRC ANSWERS REGARDING MAINTENANCE OF THE REACTOR  
VESSEL INTEGRITY DATABASE (RVID) BY INDUSTRY

1. What is the NRC's long-term purpose for RVID? Please comment on NRC intentions with respect to use of values from the database versus use of a licensee's docketed vessel materials information.

The database will continue to be a tool for the staff to utilize when reviewing RPV integrity submittals. For example, the staff compares what is in the licensee's submittal to what is contained in the RVID. Significant differences or new values with no corresponding explanation in the submittal would prompt the staff to request additional information to determine the basis for the changes. If the staff's review determines that the changes are justified, the new values will be incorporated into a subsequent revision of the database.

In other words, the staff does not blindly apply the information in the RVID for RPV integrity evaluations. The RVID helps the staff keep track of changes in the docketed information, and therefore provides for more complete review of submittals.

2. Why does the NRC want industry to assume responsibility for RVID? Please comment on NRC expectations with respect to the regulatory or economic benefits of the turnover to NRC versus the benefits to industry.
- The industry has ultimate responsibility for the integrity of RPVs in their plants, so it makes sense that the maintenance function of the database should be transferred to the industry.
  - Maintenance of the data and possible upgrades that might be desired in the future would be performed by the industry, thereby reducing the current level of NRC resources. The NRC staff could review modifications of the code, as appropriate.
  - In addition, a major purpose of the database is to assure that data that affect more than one plant are shared among licensees and are consistently applied.
  - A benefit to the industry is that it would have direct input for updates, and the process could possibly be performed more quickly since the limited NRC resources could be focused on verification rather than updates of the database.
3. In the work performed by ASTM Subcommittee E10.02, a significant effort was necessary to assure that data contained in the database was internally consistent before it could be turned over for developing the embrittlement correlations for ASTM E900. Does the NRC plan to perform a consistency evaluation of the data contained in RVID before the turnover?

The RVID and the industry database RPVDATA will be benchmarked prior to turning over the maintenance function of the RVID to the industry.

4. What are the NRC staff expectations with respect to the final product if industry assumes responsibility for the RVID function? Will it be the upper shelf and PTS database currently in RVID?

The staff expects that the industry would want to keep the upper shelf energy (USE), PTS/P-T limits, and user-defined query information since it is already compiled in a convenient manner. The final product should be clearly auditable regardless of the type of changes that are made to the database.

5. What is the process (regulatory or practical) to transfer the responsibility of the RVID function?

The industry would need to identify who would maintain the database (e.g. coordinated by NEI, maintained by EPRI). The NRC would then provide the database and inform all licensees of the transfer via an Administrative Letter.

6. What protocol does the NRC staff anticipate will be needed to enter new or modified data into RVID after the turnover? Please consider who initiates the change, who will be responsible for verifying the change, and how quickly a change needs to be made once the change process is started.

Industry would inform the NRC of any changes made for our negative consent (e.g. notify the NRC 60 days prior to making changes). If the NRC does not raise any issues, changes can be made to the database. The industry should also provide the NRC access to the most up-to-date version.

7. Would industry maintenance of the RVID function cause a conflict of interest if the RVID is used by NRC to conduct licensing evaluations?

Maintaining data is ultimately the industry's responsibility, not the NRC's. Therefore, conflict of interest is not an issue.

8. Does the NRC staff intend to maintain its own version of RVID after the RVID function is transferred to industry?

The staff plans to use the NRC approved, industry version as long as the calculations are maintained. The calculations in the RVID are a benefit to the staff since they provide a convenient means to use the RG 1.99, Rev. 2 methodology, and to look at "what if" scenarios. Without the calculations in such a multi-level application, integrity of the data would be much harder to ensure (i.e. when surveillance data are added which can be used for chemistry factor calculations, the corresponding beltline values in a database with no calculations would need to be manually changed whereas the RVID performs these calculations automatically). The database will also continue to be made available to the public via the world wide web and via mail for those who do not have Internet access.

9. Does the NRC intend RVID to contain data that is not docketed by the licensee?

The input data in the database is docketed information, and some of the calculated data are not necessarily docketed due to differences in the way that licensee's apply, for example, surveillance data to RPV integrity calculations. The input and calculated data are clearly divided in the plant detail screen. The database does have override capability for entering values other than what results from the calculations.