



## **Dissimilar Metal Weld Configuration Database Program Update**

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# Objectives

- **Status of Configuration Data Collected**
- **Dissimilar Metal (DM) Weld Assessments**
- **Current Utility Butt Weld Evaluation Approaches**
- **What has EPRI done to date with the data collected**
- **Support Activities**
- **Dissimilar Metal Weld Configuration database status and overview**
- **Future Actions**
- **Summary**

# Status of Configuration Data Collection

- **Total US PWR's = 69**
  - 42 PWR Units have provided Information
  - 27 PWR Units remaining to provide information
- **Total US BWR's = 35**
  - 14 BWR Units have provided information
  - 21 BWR Units remaining to provide information

The term “information” is subjective, currently not tracking by weld ID Number

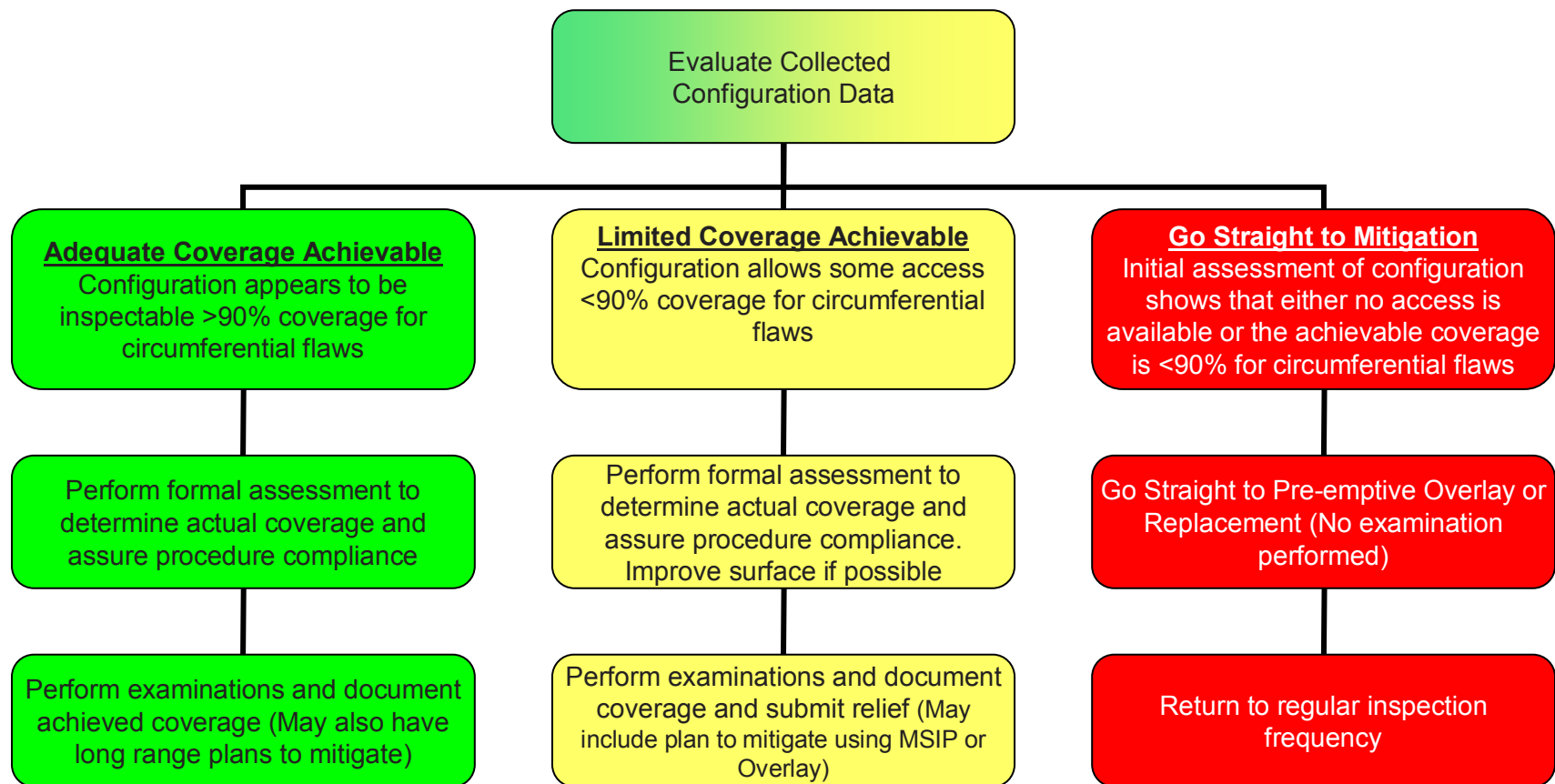
# DM Weld Assessments

- **Performance of Coverage Assessments**
  - **Assessment Options**
    - EPRI performs with SRA funds or by direct contract
    - Performed by Utility personnel
    - Contracted NDE Services Company

# DM Weld Configuration Assessments

- EPRI performed assessments
  - 18 PWR units completed
  - 1 additional PWR unit is underway
  - 69 welds have been evaluated
  - At completion of scheduled work a total of 93 welds will have been evaluated
- EPRI assessments include
  - Determination if configuration is covered by PDI Program samples
  - Determination if site specific mock-ups are required
  - An evaluation of the achievable examination coverage
  - Recommendations on techniques to improve coverage if possible
    - Machining
    - Grinding
  - Recommendations on proper search unit selection
    - Meet procedure requirements
    - Improves coverage if possible

# Current Utility Approaches In Evaluating Alloy 600 Butt Welds to Address MRP-139 Requirements



# What have we done with the data?

- 21 PDI test samples have been added to the sample inventory based on evaluation of the collected data provided to date
- EPRI has identified the need for 19 site specific mock-ups to support examinations
  - Designed
  - Fabricated
  - Developed techniques for examination
  - Demonstrated these techniques
- EPRI is identifying utilities that have similar configuration problems and promoting cost sharing
- EPRI is proposing research projects to address some of the outlying configurations

# Other Related Support Activities

- **Assisting in the design of Pre-emptive weld Overlay (PWOL) repairs**
- **Developing implementation tools to assist utilities in performing examinations**
  - Spreadsheet plotting tool
  - Procedure compliance evaluation tools
- **Data collected from walk downs very important in the design of PWOL**
- **Proposing projects to address upcoming pre-emptive overlay repair/mitigation solutions**
  - Overlays over SS cast components
  - Inlays
  - Less than full structural overlays



# Status of DM Weld Configuration Database

- **Beta version delivered on schedule**
- **Loading all data received to date**
  - **Completion targeted for end of July**
- **Need to confirm means of knowing all 600 locations**
  - **Can't assume all is being sent in**
- **Need to align reporting capabilities with MRP-139**
  - **Implementation Schedule**
  - **PDI Status**

# DM Weld Configuration Database - Overview

- Web based
- First screen after log in
- Plants are listed per user level
- Choose appropriate plant

The screenshot shows the EPRI DM Weld Configuration Database Web Site. The header includes the EPRI logo and navigation links: EPRI, EPRI Solutions, Logout, Applications, My Info, Admin, and Help. The main content area displays a welcome message and a table of plants.

**Welcome to the DM Weld Configuration Database Web Site**

Welcome to the EPRI DM Weld Configuration Database Web Site. This site is intended to provide EPRI members with a means to collect, store and retrieve information on DM Welds.

**Please Select a Plant Name to Access**

All access control and operation are determined by the plant under which you are logged in. If you have access to more than one plant, you can return to this page to change the plant you are working with.

Plant Name	Plant Description	Your User Right
<a href="#">Plant 1</a>	This is demo plant number 1.	Administrator
<a href="#">Plant 2</a>	This is demo plant number 2.	Administrator

# DM Weld Configuration Database - Overview

- Add, Edit, Delete
- Controlled by user level
- Weld listing
- Displayed by Weld ID
- Sorted by System type

The screenshot shows the EPRI DM Weld Configuration Database web application. The header includes the EPRI logo, "DMWeldWeb Home", and navigation links: "EPRI", "EPRI Solutions", "Logout", "Applications", "My Info", "Admin", and "Help". The main content area is titled "DM Weld Configuration Database" and "Weld Listing". It contains a text block explaining the listing and action buttons. A list of welds is displayed on the left, with "Weld 601/X" selected. Action buttons for "View", "Report", "Add", "Edit", and "Delete" are on the right. At the bottom, plant information is shown, including "Plant Name: Plant 1", "NSSS Supplier: GE", "Plant Type: Type 1", "Company Name: Company 1", and "Measurement Units: ENGLISH", with an "Edit Plant Info" button.

EPRI  
DMWeldWeb Home

EPRI EPRI Solutions Logout  
Applications My Info Admin Help

### DM Weld Configuration Database

#### Weld Listing

The area below contains a listing of all DM Welds that are associated with the current plant. Select a weld to work with from the list below by clicking one of the items and then selecting one of the action buttons. Select View to see the configuration information. Select Report to run a report. Use the Add, Edit, and Delete buttons to modify the list (available for users with rights).

Weld 601/X	View
Weld 602/X	Report
Weld 701/X	
Weld 703/X	Add
BWR Weld 707/X	Edit
	Delete

Plant Name: Plant 1  
NSSS Supplier: GE  
Plant Type: Type 1  
Company Name: Company 1  
Measurement Units: ENGLISH

Edit Plant Info

# DM Weld Configuration Database - Overview

- 4 tabs / work areas
  - Weld ID
  - Weld Attributes
  - Inspection Attributes
  - Attachments

The screenshot displays the EPRI DM Weld Configuration Database web application. The header includes the EPRI logo, navigation links (EPRI, EPRI Solutions, Logout), and user links (Applications, My Info, Admin). The main title is 'DM Weld Configuration Database' with a subtitle 'DM Weld Properties - Input Parameters'. Below the title are 'Save', 'Cancel', and 'Clear' buttons. A tabbed interface shows four tabs: 'Weld Identification' (selected), 'Weld Attributes', 'PDI & Inspection Attributes', and 'Attachments'. The 'Weld Identification' tab contains the following fields:

Weld Identification	
Name	Weld 702/X Units
Record Number	S-1234 Units
ISO Drawing Number	ISO-6672 Units
Photograph Index	24-I
Component ID/weld Number	W 702 Units
System	System XXX
System Line Number	S 221 Units
Notes: <div></div>	

# DM Weld Configuration Database - Overview

- Captures all information requested in Attachment 3 of MRP-139

- Weld Conditions
- Weld Preparation
- PDI Qualification
- Critical Dimensions
- Critical reference points
- Tapers
- Obstructions
- Materials

The screenshot displays the EPRI DM Weld Configuration Database web application. The header includes the EPRI logo and navigation links: EPRI, EPRI Solutions, Logout, Applications, My Info, Admin, DM Weld Main, and Help. The main title is 'DM Weld Configuration Database' with the subtitle 'DM Weld Properties - Input Parameters'. Below the title are buttons for Save, Cancel, and Clear. The 'Weld Attributes' tab is selected, showing a list of attributes and their values. The attributes include Counterbores, Weld Root, Cladding/Buttering on nozzles or both sides of weld, Weld Buttering, Remnant Welds, Adjacent Welds, Weld Crown Condition of Adjacent weld, Weld Crown Height of Adjacent weld, Weld repairs, Weld Crown Height, Weld Crown Width, Circumference, ID @ Weld Centerline - Calculated, OD @ Weld Centerline - Calculated, Presence of Diametric Shrinkage, Average Depth of Diametric Shrinkage, and Maximum Depth of Diametric Shrinkage. Each attribute has a corresponding input field with a value and a 'Units' column for some numerical values.

Weld Attributes		
Counterbores	Yes	
Weld Root	Yes	
Cladding/Buttering on nozzles or both sides of weld	Both Sides	
Weld Buttering	Yes	
Remnant Welds	No	
Adjacent Welds	No	
Weld Crown Condition of Adjacent weld	Unconditioned	
Weld Crown Height of Adjacent weld	< 1/32"	
Weld repairs	Yes	
Weld Crown Height	23	Units
Weld Crown Width	13	Units
Circumference	56	Units
ID @ Weld Centerline - Calculated	221	Units
OD @ Weld Centerline - Calculated	367	Units
Presence of Diametric Shrinkage	Yes	
Average Depth of Diametric Shrinkage	14	Units
Maximum Depth of Diametric Shrinkage	25	Units

# DM Weld Configuration Database - Overview

- Captures PDI Status
- Critical Inspection Parameters
- Mitigated (Yes/No)
  - Type of Mitigation

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PDI Attributes	
Current Code Classification	CODE-XXX
Code Classification per MRP - XXX	MRP Code-X

Inspection Attributes	
PDI Qualified	Yes
Is a site specific mock up required?	Yes
Has site specific mock up?	Yes
Site specific mock up ID	DRW-122
Next scheduled inspection year	2007
Most recent inspection year	2004
Indications detected	Yes
Percent coverage (increments of 10%)	70 %
Area dose rates	1-100 Units
Contact dose rates	1-100 Units
Qualitative assessment of previous data - H/M/L	Some Text
Obstructions	No
Suitable for Automated Inspection	No

# DM Weld Configuration Database - Overview

- Upload work area
- T' & C'
- Radiographs
- Photographs
- Inspection Data
- Procedures
- Obstructions Information
- Mock up drawings
- Scan plans
- Coverage plots
- Design drawings
- Assessment report
- General documentation

The screenshot displays the EPRI DM Weld Configuration Database web application. The header includes the EPRI logo, navigation links (EPRI, EPRI Solutions, Logout), and user links (Applications, My Info, Admin). The main title is 'DM Weld Configuration Database' with a subtitle 'DM Weld Properties - Input Parameters'. Below the title are 'Save', 'Cancel', and 'Clear' buttons. The 'Attachments' tab is selected, showing a form for adding new attachments. The form includes fields for 'File Title' (containing 'Photograph 1'), 'File Name' (containing 'photo 1.jpg'), and 'File Type' (a dropdown menu with 'Photograph' selected). An 'Add' button is at the bottom right of the form. Below the form is a table listing existing attachments.

File Title	File Name	Type	
<a href="#">Photograph X12W</a>	photo 1.jpg	Photograph	Delete
<a href="#">Drawing Y22</a>	mockDrawing 1.doc	Mockup Drawing	Delete
<a href="#">Radiograph X12</a>	radiograph 21.doc	Radiograph	Delete

# Future Activities

- Continue to perform assessments as requested
- Continue to load all available data into database
- Coordinate with MRP in the development of Alloy 600 management database
- Assure qualified inspection procedures are available to address other mitigation methods being developed
  - Weld Inlays
  - Overlay Cast Components
  - Less than full structure WOL' (Pre-emptive weld overlays)
  - Support utilities in evaluating data collected during examinations



# Summary

- The configuration data from many of the plants has been sent to the NDEC
- This data has been instrumental in planning for many of the scheduled examinations
  - Mock-up fabrication
  - Equipment qualification
  - Procedure Expansion
- It is expected that the amount of data received will increase substantially in remainder of 2006 and 2007
- The DM database will be a valuable tool to assist utilities in planning for their upcoming examinations
- Work needs to be done to assure qualified NDE methods are available for the various mitigation methods being proposed