

MODEL-ASSISTED POD WORKING GROUP

Prospectus

July 11, 2004

Objective:

- To promote the increased understanding, development and implementation of model-assisted POD methodologies.

Background:

There is an increasing recognition that the use of physics-based models has the potential to assist in the determination of POD by reducing the time and cost of conducting POD studies, quite likely increasing the accuracy and portability of the results in the process. However, the definition of procedures and protocols to best realize these advantages is in its early days; initial demonstrations have been made but the results have not been widely discussed. The Model-Assisted POD Working Group will consist of a broad community with interests in POD determination. It will serve as a forum to discuss and provide input on a wide variety of issues related to this emerging approach.

Approach:

The working group will meet periodically and conduct the following activities:

- Discuss strategies for model-assisted POD determination
- Discuss requirements for models to be used in POD studies
- Identify gaps that need to be addressed between state of the art models and real world problems
- Provide input regarding examples of specific problems that would demonstrate the utility of model-assisted POD activities
- Communicate the results of model-assisted POD demonstrations

The working group would not be expected to do the detailed work in these areas but rather serve as a sounding board and provide general input. Examples of topics that might be considered in each of these activities are the following:

Discuss strategies for model-assisted POD determination

- Empirical approaches, refined to include insight from physics-based models
- Model-assisted methodologies based on flaw response
- Model-assisted methodologies based on image data

Discuss requirements for models to be used in POD studies

- Accuracy expected of models
- Extent of validation required

- Strategies/requirements for determining input parameters

Provide input regarding examples of specific problems that would demonstrate the utility of model-assisted POD activities

- How models can be used to establish the acceptability of replacement inspection techniques, e.g., transition from single frequency eddy current methods to transient eddy current methods
- Use of models to assist in the transfer the results of assessments under one set of conditions to a related set of conditions
- Full POD determinations as required to meet lifing requirements

Share the results of model-assisted POD demonstrations

- Details will be depend on the demonstrations that are undertaken in other, focused projects or data that can be made available from working group members.

Metric:

The Model-Assisted POD Working Group will be considered a success if, during its duration, activities under a variety of programs lead to

- Draft protocols for model-assisted POD
- Draft requirements for model qualification for use in POD determination
- Model-assisted POD demonstrations

Duration:

The Model-Assisted POD Working Group will be initially constituted for a period of 18 months.

Output:

A final report will be prepared summarizing the findings of the Model-assisted POD Working Group, including suggested

- Strategies for model-assisted POD determination
- Requirements for models to be used in POD determinations
- Examples of specific opportunities for future demonstrations
- Future directions