# Invitation to Participate in the Round-Robin Test
# API 579-1/ASME FFS-1 Part 5
# Local Thin Area Level 3 FEA Assessment

We are pleased to invite you to participate in the round-robin test for the API 579-1/ASME FFS-1 Part 5 Local Thin Area Level 3 FEA Assessment, as outlined below. We would sincerely appreciate your participation.

## 1 Purpose

The API 579-1/ASME FFS-1 Part 5 Local Thin Area Level 3 assessment is widely used outside Japan as a fitness-for-service (FFS) assessment method for local thinning in pressure equipment.

With a view to its future introduction to domestic Class A certified facilities under the High Pressure Gas Safety Act, subject to regulatory review and approval, this round-robin test is intended to promote broader understanding and awareness of the assessment methodology.

It also aims to quantitatively analyze differences in assessment results and their underlying causes, enhance technical capabilities through mutual learning, and support the wider industrial adoption of finite element analysis (FEA) technology.

## 2 Eligibility

Applications are open to the following categories:

### 2.1 Corporate / Organizational Category

Individuals affiliated with companies or organizations involved in fitness-for-service assessments using FEA.

### 2.2 Student Category

Students enrolled in technical high schools, colleges of technology, universities, or graduate schools.

## 3 Submission Requirements

### 3.1 Corporate / Organizational Category

Participants are requested to submit a report that clearly summarizes the assessment approach and presents the assessment results.

Please refer to the attached materials for further details.

### 3.2 Student Category

Participants are required to submit their results in the form of a paper, including discussion and analysis.

Outstanding submissions will be recognized with awards.

## 4 Application Deadline

Friday, February 26, 2027

## 5 Additional Information

By applying, participants agree that the submitted data and assessment results may be used by the Pressure Equipment Sustainable Safety Committee of the Japan Welding Engineering Society.

May 22, 2026

Pressure Equipment Sustainable Safety Committee

Japan Welding Engineering Society

# Requirements for Participation in the Round-Robin Analysis

Participants shall submit documentation that clearly describes the evaluation procedure and the results obtained in accordance with **API 579-1/ASME FFS-1 Part 5 Level 3**. The format of submission is not specified; however, the following items shall be included without exception:

1. **MAWP for the Intact Vessel**
   The **MAWP** for each case, assuming an **intact vessel** (i.e., a vessel without any locally thinned area introduced by machining), shall be provided.

2. **Value of API 579-1/ASME FFS-1, Section 2.4.2.2, Equation (2.1)**
   The value calculated in accordance with **API 579-1/ASME FFS-1, Section 2.4.2.2, Equation (2.1)** shall be provided.

3. **MAWPr from the Level 3 Assessment**
   The **MAWPr** concluded from the **Level 3 assessment** shall be reported.
   In addition, the individual **MAWPr** values based on the **Global Criteria** and the **Local Criteria**, as obtained during the assessment process, shall also be presented.
   The smaller of these two values shall be taken as the **MAWPr**.
   It shall be noted that the final **MAWPr** reported as the assessment result for the subject vessel shall not exceed the **MAWP**.

4. **Modeling Method**
   Any modeling method may be used, provided that it conforms to the requirements of the applicable code. No restriction is imposed on the software to be used.
   Either a **three-dimensional solid model** or a **three-dimensional shell model** may be employed.
   However, the following modeling information shall be explicitly stated:
   - element type;
   - number of divisions through the wall thickness; and
   - mesh size in the vicinity of the locally thinned area.

5. **Material Models**
   The analysis shall be conducted using the following two material models:

   **Material Model 1**
   A material model based on the **API 579-1/ASME FFS-1 Annex 2E MPC Stress-**

**Strain Curve** shall be used.
For this model, the **code-specified yield strength, minimum tensile strength, and modulus of elasticity** shall be adopted.

**Material Model 2**
A material model based on the **actual tensile test data of the material** shall be used (see **Slide 3, Section 2, "Material Test Data"**).
The corresponding digital data are attached to the same slide.

6. **Submission Requirement for Student Participants**
Where the participant is a **master's course student, undergraduate student, or technical college student**, the results shall be submitted in the form of a **paper including discussion and analysis**.
Outstanding submissions shall be eligible for commendation.

7. **Inquiries**
Any inquiries regarding the analysis data or other related matters shall be directed to either of the following contacts at the **Production Engineering Center, Idemitsu Kosan Co., Ltd.**:

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Regards,