DP FMEA Proving Trials Gap Analysis - Aide Memoire

Manual-first assurance. AI may assist only with explicit disclosure and mandatory DP consultant review.

1. Establish the basis

Confirm vessel identity, DP class, Class notation, redundancy concept, WCFDI, approved bus modes, AC/DC topology, specialist systems and the exact programme/report under review.

2. Register evidence

Record document/data identity, revision, status, location and use. Planned tests and expected results are not evidence of execution.

3. Set applicability

Complete VESSEL OVERVIEW, then Data > Reapply or select Relevant = Yes. Blank/To confirm retains potentially relevant checks. Open ties do not remove within-group protection or parallel-generation reviews.

4. Assess each relevant criterion

Read Review point + What good looks like. Record an exact test/page/data locator, objective note and concise gap. Use only the defined outcomes; justify Not applicable.

5. Manage findings

Record consequence, action, owner, target and acceptance evidence. Stored Finding ID and Criterion ID are locked; the sheets are protected (sorting off; filters, Reapply and slicers work).

6. Interpret the dashboard

Completion includes justified Not applicable; technical coverage excludes it. Blank/invalid results are unassessed. Read relevant findings and retained out-of-scope history separately; neither metric is approval.

Outcome	Meaning
Sufficiently covered	Objective evidence fully demonstrates the criterion.
Partially covered	Material evidence exists but defined elements remain incomplete.
Not covered	Required analysis, test or evidence is absent/ineffective.
Unable to verify	Evidence is insufficient to decide - never a pass.
Not applicable	Reviewed with justification; excluded from technical score.
Not assessed	No defined assessment yet; no technical score credit.

Technical prompts and issue gate

Closed/common bus - Cross-group propagation, ride-through, primary/backup protection, stability, PMS/synchronising and shared sensing/control. Retain generic protections with open ties.

ESS/hybrid - Credited energy, SOC/SOH, BMS/EMS/PMS, consequence-analysis limits, converters/contactors, isolation, thermal safety, degraded modes and restart.

DC/mixed distribution - Fault energy, selectivity, earth/arc faults, converter blocking, stored energy, voltage stability, detection and restoration. Include relevant shared DC links in an AC plant.

Future fuels/fuel cells - Fuel supply dependencies, purge/inerting, ventilation, F&G/ESD/QCV, hazardous release, transition and safe shutdown.

IACS E26/E27 - Establish applicability first; then inventory, segmentation, access, hardening, time-aligned logs, change control, backup/restore and supplier evidence.

Data centricity - Stable IDs, independently verifiable records, channel/time-base context, calibration and reproducibility. JSON/CSV/hash choices are implementation aids, not universal source mandates.

Proving-trials issue gate

Every credited FMEA failure has a trial or justified equivalent; initial conditions and fault insertion are valid; actual response and deviations are recorded; acceptance is tied to FMEA prediction and WCFDI.

Closure and retained history

Closed enters the closed count only with evidence, reviewer and a valid date; incomplete records remain open and flagged. Populated fields do not establish engineering acceptance. The independent consultant verifies the original criterion for every affected mode. Out-of-scope retained findings remain visible as history, outside current relevant counts.

Before issue

100% assessed or omissions qualified; every Major/UTV outcome dispositioned; reference editions confirmed; closure independently reviewed; dashboard limitations stated; AI use disclosed and consultant-reviewed.

Core references: IMO MSC.1/Circ.1580; IMCA M166/M190/M250; MTS TECHOP D-02/O-02; JDP 01 Rev 1; OCIMF DP FMEA Assurance Framework; project-applicable ABS, DNV, LR, BV and IACS requirements.