



TEXAS RE
Ensuring electric reliability for Texans



2021 Upcoming O&P Standards

Keith Smith

Manager, O&P Compliance Monitoring

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Upcoming O&P Standards

**PRC-
012-2**

January
01, 2021

**PER-
006-1**

April 01,
2021

PER-006-1

Specific Training for Personnel

To ensure that personnel are trained on specific topics essential to reliability to perform or support Real-time operations of the Bulk Electric System.

PER-006-1 – Implementation Plan



PRC-001-1.1(ii) R1 retired on March 31, 2021



PER-006-1 effective on April 01, 2021

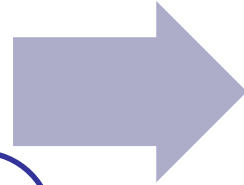
- Delayed from October 01, 2020 due to COVID-19 per FERC Order



PRC-001-1.1(ii) to PER-006-1

PRC-001-1.1(ii) R1

- Each Transmission Operator, Balancing Authority, and Generator Operator shall be familiar with the purpose and limitations of Protection System schemes applied in its area.



PER-006-1 R1

- Each Generator Operator shall provide training to personnel identified in Applicability section 4.1.1.1. on the operational functionality of Protection Systems and Remedial Action Schemes (RAS) that affect the output of the generating Facility(ies) it operates.



4.1.1. Generator Operator that has:

- 4.1.1.1. Plant personnel who are responsible for the Real-time control of a generator and receive Operating Instruction(s) from the Generator Operator's Reliability Coordinator, Balancing Authority, Transmission Operator, or centrally located dispatch center.

Applicable Personnel

- **Responsible for the Real-time control of a generator; and**
- **Receive Operating Instruction(s) from the Generator Operator’s Reliability Coordinator, Balancing Authority, Transmission Operator, or centrally located dispatch center**

PER-006-1 – Timelines

Initial training by April 01, 2021



New personnel trained before staffing applicable role



Updated training when changes affect operational functionality



Periodic training recommended as best practice

“Operational functionality” focuses the training on how Protection Systems operate and prevent possible damage to Elements

Address how the operational functionality of Protection Systems and Remedial Action Schemes (RAS) are applied and the affects they may have on a generating Facility

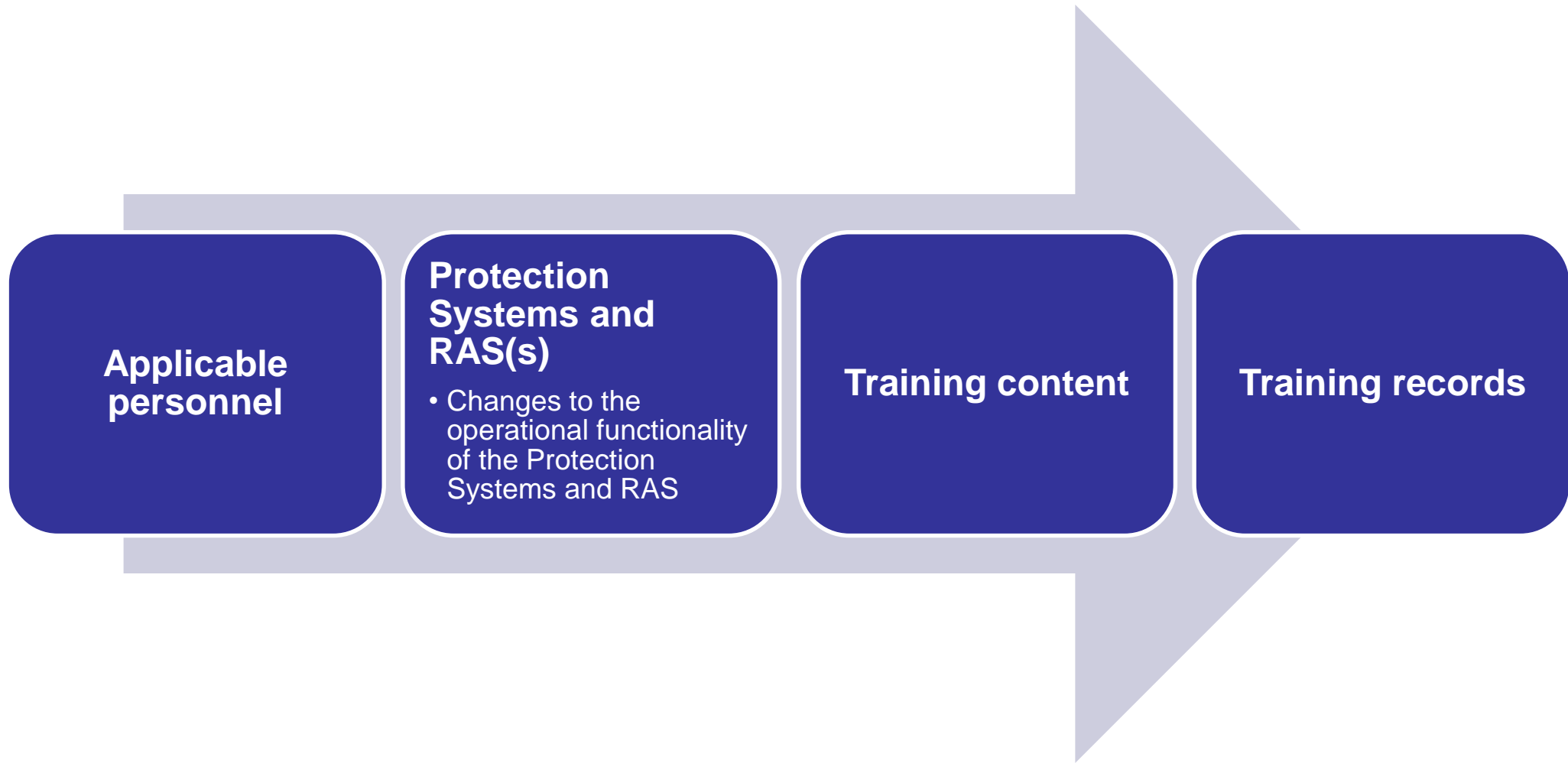
Address how RAS detects pre-determined BES conditions and automatically takes corrective actions



Considerations for operational functionality may include, but are not limited to the following:

- Purpose of protective relays and RAS
- Zones of protection
- Protection communication systems (e.g., line current differential, direct transfer trip, etc.)
- Voltage and current inputs
- Station dc supply associated with protective functions
- Resulting actions – tripping/closing of breakers; tripping of a generator step-up (GSU) transformer; or generator ramping/tripping control functions

PER-006-1 – Documentation



PER-006-1 – Internal Controls



PRC-012-2

Remedial Action Schemes

To ensure that Remedial Action Schemes (RAS) do not introduce unintentional or unacceptable reliability risks to the Bulk Electric System (BES).

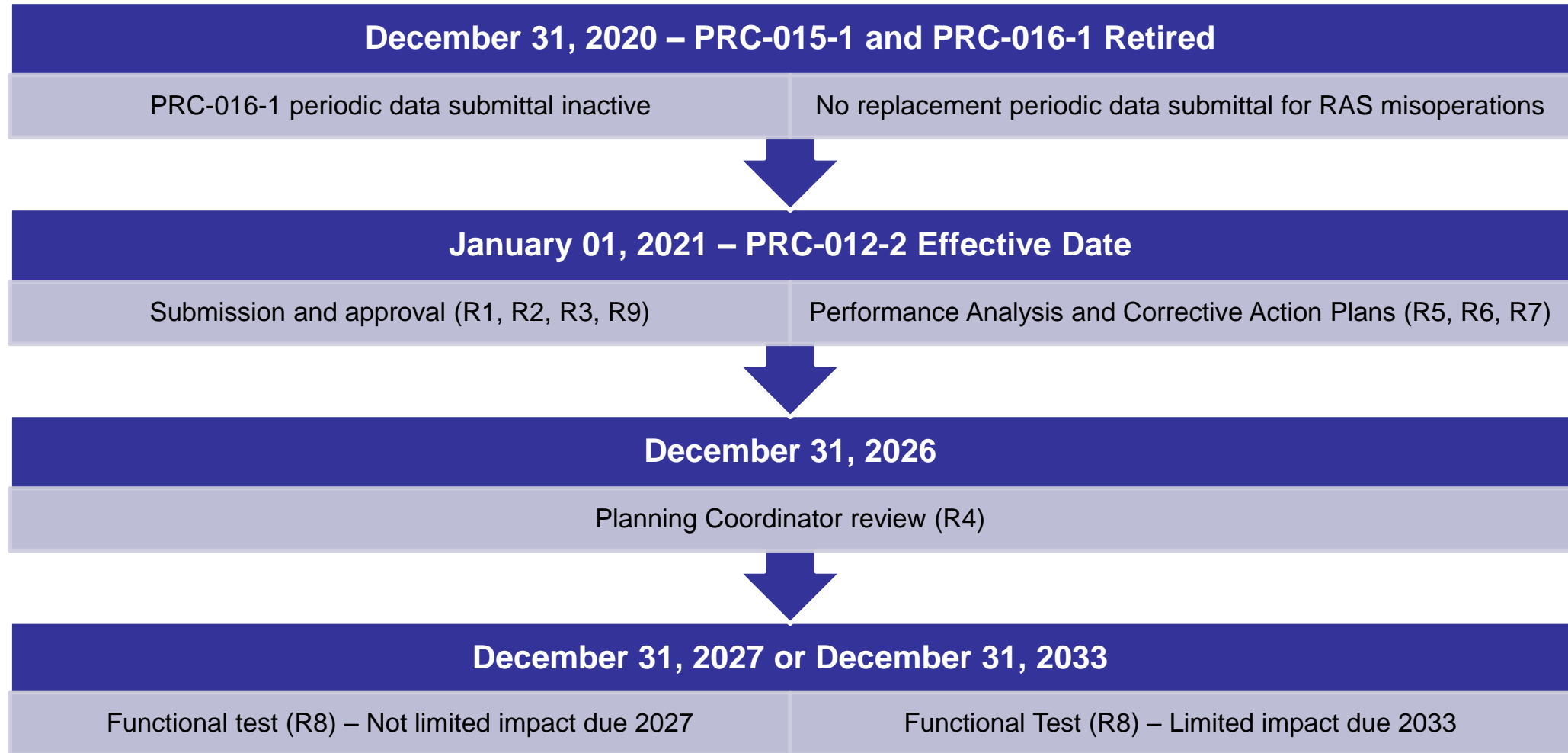
Reliability Coordinator

Planning Coordinator

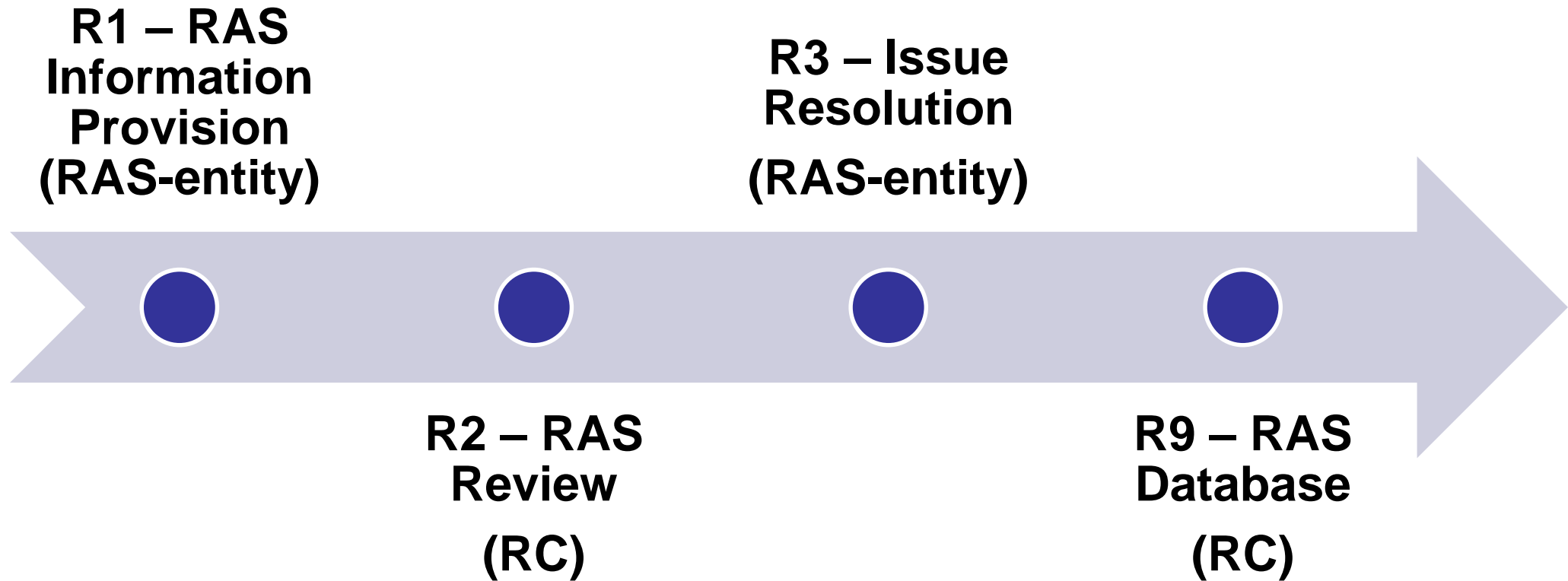
RAS-entity – the Transmission Owner, Generator Owner, or Distribution Provider that owns all or part of a RAS

- RAS-entities have the option of collaborating to fulfill their responsibilities for each applicable requirement.

PRC-012-2 – Implementation Plan



PRC-012-2 – Initial RAS Submission and Approval



PRC-012-2 – Initial RAS Submission and Approval

- **By January 01, 2021, each RAS-entity should:**
 - Provide the information identified in Attachment 1 to the RC (R1); and
 - Resolve reliability issue(s) identified by the RC to obtain approval of the RAS (R3)
- **ERCOT sent a Market Notice (W-A030220-02 Update RAS documentation) on August 13, 2020 requiring all current Remedial Action Scheme (RAS) owners and Market Participants that own Facilities included in a RAS to submit/re-submit their RAS documentation no later than October 1, 2020.**
- **If a RAS-entity has not submitted Attachment 1 information to ERCOT, coordinate with other RAS-entities and ERCOT to confirm necessary information has been provided.**

PRC-012-2 – Performance Analysis and Corrective Action Plans

R'qt	RAS-entity Action	Timeline
R5	Participate in analyzing the RAS operational performance and provide the results of RAS operational performance analysis that identified any deficiencies to reviewing RC(s).	Within 120 full calendar days of a RAS operation or a failure of its RAS to operate when expected, or on a mutually agreed upon schedule with its reviewing RC(s)
R6	Participate in developing a Corrective Action Plan (CAP) and submit the CAP to its reviewing RC(s).	Within six full calendar months of: <ul style="list-style-type: none"> • Being notified of a deficiency in its RAS pursuant to R4, or • Notifying the RC of a deficiency pursuant to Part 5.2, or • Identifying a deficiency in its RAS pursuant to R8.
R7	For each of its CAPs developed pursuant to Requirement R6: <ol style="list-style-type: none"> 7.1. Implement the CAP. 7.2. Update the CAP if actions or timetables change. 7.3. Notify each reviewing RC if CAP actions or timetables change and when the CAP is completed. 	Per timetable identified in CAP

PRC-012-2 – Functional Testing

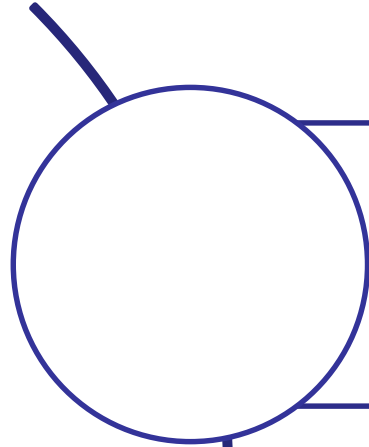
Limited impact RAS

- A RAS designated as limited impact cannot, by inadvertent operation or failure to operate, cause or contribute to BES Cascading, uncontrolled separation, angular instability, voltage instability, voltage collapse, or unacceptably damped oscillations
- The RC designates a RAS as a limited impact RAS during its review of the RAS under R2 (in accordance with Attachment 2)

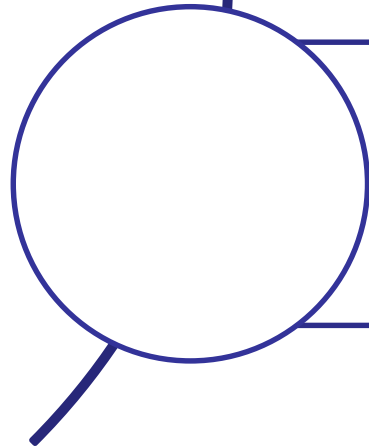
Functional testing

- Designation of a RAS as a limited impact RAS extends functional testing requirements from six years to twelve years
- An existing RAS must be designated by the RC as a limited impact RAS prior to extending interval for functional testing from six years to twelve years

PRC-012-2 – Functional Testing



Validate RAS operation by ensuring System states are detected and processed, and that actions taken by the controls are correct and occur within the expected time using the in-service settings and logic.



Functional testing is aimed at assuring overall RAS performance and not the component focused testing contained in the PRC-005 maintenance standard.

Questions?



December 17, 2020