NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standard Audit Worksheet[1]

PRC-005-6 – Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance

This section to be completed by the Compliance Enforcement Authority.

Audit ID:	Audit ID if available; or REG-NCRnnnnn-YYYYMMDD
Registered Entity:	Registered name of entity being audited
NCR Number:	NCRnnnnn
Compliance Enforcement Authority:	Region or NERC performing audit
Compliance Assessment Date(s)[2]:	Month DD, YYYY, to Month DD, YYYY
Compliance Monitoring Method:	[On-site Audit | Off-site Audit | Spot Check]
Names of Auditors:	Supplied by CEA

Applicability of Requirements

	BA	DP	GO	GOP	IA	LSE	PA	PSE	RC	RP	RSG	TO	TOP	TP	TSP
R1		X	X									X			
R2		X	X									X			
R3		X	X									X			
R4		X	X									X			
R5		X	X									X			

Legend:

Text with blue background:	Fixed text – do not edit
Text entry area with Green background:	Entity-supplied information
Text entry area with white background:	Auditor-supplied information

[1] NERC developed this Reliability Standard Audit Worksheet (RSAW) language in order to facilitate NERC's and the Regional Entities' assessment of a registered entity's compliance with this Reliability Standard. The NERC RSAW language is written to specific versions of each NERC Reliability Standard. Entities using this RSAW should choose the version of the RSAW applicable to the Reliability Standard being assessed. While the information included in this RSAW provides some of the methodology that NERC has elected to use to assess compliance with the requirements of the Reliability Standard, this document should not be treated as a substitute for the Reliability Standard or viewed as additional Reliability Standard requirements. In all cases, the Regional Entity should rely on the language contained in the Reliability Standard itself, and not on the language contained in this RSAW, to determine compliance with the Reliability Standard. NERC's Reliability Standards can be found on NERC's website. Additionally, NERC Reliability Standards are updated frequently, and this RSAW may not necessarily be updated with the same frequency. Therefore, it is imperative that entities treat this RSAW as a reference document only, and not as a substitute or replacement for the Reliability Standard. It is the responsibility of the registered entity to verify its compliance with the latest approved version of the Reliability Standards, by the applicable governmental authority, relevant to its registration status.

The NERC RSAW language contained within this document provides a non-exclusive list, for informational purposes only, of examples of the types of evidence a registered entity may produce or may be asked to produce to demonstrate compliance with the Reliability Standard. A registered entity's adherence to the examples contained within this RSAW does not necessarily constitute compliance with the applicable Reliability Standard, and NERC and the Regional Entity using this RSAW reserves the right to request additional evidence from the registered entity that is not included in this RSAW. Additionally, this RSAW includes excerpts from FERC Orders and other regulatory references. The FERC Order cites are provided for ease of reference only, and this document does not necessarily include all applicable Order provisions. In the event of a discrepancy between FERC Orders, and the language included in this document, FERC Orders shall prevail.

[2] Compliance Assessment Date(s): The date(s) the actual compliance assessment (on-site audit, off-site spot check, etc.) occurs.

Applicable Facilities:

Protection Systems and Sudden Pressure Relaying that are installed for the purpose of detecting Faults on BES Elements (lines, buses, transformers, etc.)

Protection Systems used for underfrequency load-shedding systems installed per ERO underfrequency load-shedding requirements.

Protection Systems used for undervoltage load-shedding systems installed to prevent system voltage collapse or voltage instability for BES reliability.

Protection Systems installed as a Remedial Action Scheme (RAS) for BES reliability.

Protection Systems and Sudden Pressure Relaying for generator Facilities that are part of the BES, except for generators identified through inclusion I4 of the BES definition, including:

Protection Systems that act to trip the generator either directly or via lockoutor auxiliary tripping relays.

Protection Systems and Sudden Pressure Relaying for generator step-up transformers for generators that are part of the BES.

Protection Systems and Sudden Pressure Relaying for station service or excitation transformers connected to the generator bus of generators which are part of the BES, that act to trip the generator either directly or via lockout or tripping auxiliary relays.

Protection Systems and Sudden Pressure Relaying for the following BES generator Facilities for dispersed power producing resources identified through Inclusion I4 of the BES definition:

Protection Systems and Sudden Pressure Relaying for Facilities used in aggregating dispersed BES generation from the point where those resources aggregate to greater than 75 MVA to a common point of connection at 100kV or above.

Automatic Reclosing[3] , including:

Automatic Reclosing applied on the terminals of Elements connected to the BES bus located at generating plant substations where the total installed gross generating plant capacity is greater than

[3] Automatic Reclosing addressed in Section 4.2.7.1 and 4.2.7.2 may be excluded if the equipment owner can demonstrate that a close-in three-phase fault present for twice the normal clearing time (capturing a minimum trip-close-trip time delay) does not result in a total loss of gross generation in the Interconnection exceeding the gross capacity of the largest relevant BES generating unit where the Automatic Reclosing is applied.

the gross capacity of the largest BES generating unit within the Balancing Authority Area or, if a member of a Reserve Sharing Group, the largest generating unit within the Reserve Sharing Group[4].

Automatic Reclosing applied on the terminals of all BES Elements at substations one bus away from generating plants specified in Section 4.2.7.1 when the substation is less than 10 circuit-miles from the generating plant substation.

Automatic Reclosing applied as an integral part of an RAS specified in Section 4.2.4.

[4] The largest BES generating unit within the Balancing Authority Area or the largest generating unit within the Reserve Sharing Group, as applicable, is subject to change. As a result of such a change, the Automatic Reclosing Components subject to the standard could change effective on the date of such change.

Special Note to Auditors:

Reliability Standard PRC-005-6 contains technical terms which are unique to this Standard and are not addressed in either the NERC Rules of Procedure or the NERC Glossary (with the exception of Protection System which is a NERC Glossary term and included below for convenience). When used in this RSAW, these terms are capitalized and the have the following meanings:

Automatic Reclosing – Includes the following Components:

- Reclosing relay
- Supervisory relay(s) or function(s) – relay(s) or function(s) that perform voltage and/or sync check functions that enable or disable operation of the reclosing relay
- Voltage sensing devices associated with the supervisory relay(s)
- Control circuitry associated with the reclosing relay or supervisory relay(s)

Component – A Component is any individual discrete piece of equipment included in a Protection System, Automatic Reclosing, or Sudden Pressure Relaying.

Component Type –

- Any one of the five specific elements of the Protection System definition.
- Any one of the four specific elements of Automatic Reclosing.
- Any one of the two specific elements of Sudden Pressure Relaying.

Countable Event – A failure of a Component requiring repair or replacement, any condition discovered during the maintenance activities in Tables 1-1 through 1-5, Table 3, Tables 4-1 through 4-3, and Table 5, which requires corrective action, or a Protection System Misoperation attributed to hardware failure or calibration failure. Misoperations due to product design errors, software errors, relay settings different from specified settings, Protection System Component, Automatic Reclosing, or Sudden Pressure Relaying configuration or application errors are not included in Countable Events.

Protection System –

- Protective relays which respond to electrical quantities,
- Communications systems necessary for correct operation of protective functions,
- Voltage and current sensing devices providing inputs to protective relays,
- Station dc supply associated with protective functions (including station batteries, battery chargers, and nonbattery-based dc supply), and
- Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Segment – Components of a consistent design standard, or a particular model or type from a single manufacturer that typically share other common elements. Consistent performance is expected across the entire population of a Segment. A Segment must contain at least sixty (60) individual Components.

Sudden Pressure Relaying – A system that trips an interrupting device(s) to isolate the equipment it is monitoring and includes the following Components:

- Fault pressure relay – a mechanical relay or device that detects rapid changes in gas pressure, oil pressure, or oil flow that are indicative of Faults within liquid-filled, wire-wound equipment
- Control circuitry associated with a fault pressure relay

Unresolved Maintenance Issue – A deficiency identified during a maintenance activity that causes the Component to not meet the intended performance, cannot be corrected during the maintenance interval, and requires follow-up corrective action.

Findings

(This section to be completed by the Compliance Enforcement Authority)

Req.	Finding	Summary and Documentation	Functions Monitored
R1			
R2			
R3			
R4			
R5			

Req.	Areas of Concern

Req.	Recommendations

Req.	Positive Observations

Subject Matter Experts

Identify the Subject Matter Expert(s) responsible for this Reliability Standard.

Registered Entity Response (Required; Insert additional rows if needed):

SME Name	Title	Organization	Requirement(s)

R1 Supporting Evidence and Documentation

R1. Each Transmission Owner, Generator Owner, and Distribution Provider shall establish a Protection System Maintenance Program (PSMP) for its Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying identified in Section 4.2, Facilities.

The PSMP Shall:

1.1 Identify which maintenance method (time-based, performance-based per PRC-005 Attachment A, or a combination) is used to address each Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component Type. All batteries associated with the station DC supply Protection System Supply Component Type of a Protection System shall be included in a time-based program as described in Table 1-4 and Table 3.

1.2 Include the applicable monitored Component attributes applied to each Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component Type consistent with the maintenance intervals specified in Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5 where monitoring is used to extend the maintenance intervals beyond those specified for unmonitored Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components.

M1. Each Transmission Owner, Generator Owner and Distribution Provider shall have a documented PSMP in accordance with Requirement 1.

For each Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component Type, the documentation shall include the type of maintenance method applied (time based, performance-based, or a combination of these maintenance methods) and shall include all batteries associated with the station DC supply Component Types in a time-based program as described in Table 1-4 and Table 3. (Part 1.1)

For Component Types that use monitoring to extend the maintenance intervals, the responsible entity(s) shall have evidence for each Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component Type (such as manufacturer's specifications or engineering drawings) of the appropriate monitored Component attributes as specified in Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5. (Part 1.2)

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requested[i]:

Provide the following evidence, or other evidence to demonstrate compliance.

The entity's documented PSMP meeting the criteria of Requirement R1, Parts 1.1 through 1.2.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.					
File Name	**Document Title**	**Revision or Version**	**Document Date**	**Relevant Page(s) or Section(s)**	**Description of Applicability of Document**

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to PRC-005-6, R1

This section to be completed by the Compliance Enforcement Authority

	(R1) Verify that each entity has a documented PSMP in accordance with Requirement R1.
	(Part 1.1) Verify that the entity PSMP identifies which maintenance method (s) (time-based, performance-based per PRC-005 Attachment A, or a combination) is used to address each Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component Type. Note that all batteries associated with the station DC supply Component Type of a Protection System shall be included in a time-based program as described in Table 1-4, Table 2, and Table 3, PRC-005-6.
	(Part 1.2) Verify that the entity PSMP includes the applicable monitored Component attributes applied to each Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component Type consistent with the maintenance intervals specified in Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5 where monitoring is used to extend the maintenance intervals beyond those specified for unmonitored Protection System Components.
Note to Auditor:	

Auditor Notes:

R2 Supporting Evidence and Documentation

R2. Each Transmission Owner, Generator Owner, and Distribution Provider that uses performance-based maintenance intervals in its PSMP shall follow the procedure established in PRC-005, Attachment A to establish and maintain its performance-based intervals.

M2. Each Transmission Owner, Generator Owner, and Distribution Provider that uses performance-based maintenance intervals shall have evidence that its current performance-based maintenance program(s) is in accordance with Requirement R2, which may include, but is not limited to, Component lists, dated maintenance records, and dated analysis records and results.

Registered Entity Response (Required):
Question: Has entity used performance-based maintenance (PBM) during the compliance monitoring period?
☐ Yes ☐ No
[If Yes, proceed to the Compliance Narrative section below. If No, Requirement R2 is not applicable.]
[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

Registered Entity Response (Required):
Compliance Narrative:
Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requested[i]:

Provide the following evidence, or other evidence to demonstrate compliance.
A tabulation listing all of the Segments that were established and/or maintained as part of performance-based maintenance since the last audit. The list shall identify for all Segments, a Segment Title, the Component Type, the number of Components included in the Segment, and the time periods in which the Segment was being established, and/or was being used, as part of the performance-based Protection System Maintenance Program. (This is also required for Requirement 4).
All lists, developed by the entity since the last audit, used to establish the technical justification for the initial use of performance-based PSMPs. (Lists shall include a description of all Components in each Segment.)
Evidence that the entity, while establishing the technical justification for the initial use of all performance-based Protection System Maintenance Program Segments, maintained the Components in each Segment according to the time-based maximum allowable intervals established in Tables 1-1 through 1-5, Table 3, Tables 4-1 thrugh 4-3, and Table 5 until results of maintenance activities for each Segment were available for a minimum of 30 individual Components in each Segment. Evidence should address each PBM Segment established since the last audit.
Evidence that the entity, while establishing the technical justification for the initial use of all performance-based Protection System Maintenance Program Segments, documented the maintenance program activities

and results for each Segment, including maintenance dates and Countable Events for each included Component. Evidence should address each PBM Segment established since the last audit.
Evidence that the entity, while establishing the technical justification for the initial use of all performance-based Protection System Maintenance Program Segments, analyzed the maintenance program activities and results for each Segment to determine the overall performance of the Segment and develop maintenance intervals. Evidence should address each PBM Segment established since the last audit.
Evidence that the entity, while establishing the technical justification for the initial use of all performance-based Protection System Maintenance Program Segments, determined the maximum allowable maintenance interval for each Segment such that the Segment experiences Countable Events on no more than 4% of the Components within the Segment, for the greater of either the last 30 Components maintained or all Components maintained in the previous year. Evidence should address each PBM Segment established since the last audit.
Evidence that the entity, while maintaining the technical justification for the ongoing use of all performance based Protection System Maintenance Programs, at least annually, updated the list of Components and Segments and/or description if any changes occurred within all Segments, in every year since the last audit.
Evidence that the entity, while maintaining the technical justification for the ongoing use of all performance based PSMPs, performed maintenance on at least the greater of 5% of the Components (addressed in the performance based PSMP) in each Segment or three individual Components within the Segment in every year since the last audit.
Evidence that the entity, while maintaining the technical justification for the ongoing use of all performance based Protection System Maintenance Programs, analyzed the maintenance program activities and results for each Segment in the prior year, to determine the overall performance of the Segment, in every year since the last audit.
Evidence that the entity, in every year since the last audit, while maintaining the technical justification for the ongoing use of all performance based Protection System Maintenance Programs, used the prior year's data, to determine the maximum allowable maintenance interval for each Segment such that the Segment experiences Countable Events on no more than 4% of the Components within the Segment, for the greater of either the last 30 Components maintained or all Components maintained in the previous year.
Evidence that the entity, while maintaining the technical justification for the ongoing use of all performance based Protection System Maintenance Programs, in every year since the last audit, developed, documented, and implemented an action plan to reduce the Countable Events to 4% or less of the Segment population within 3 years, if the Components in a Segment maintained through a performance based PSMP experience Countable Events in excess of 4%.
Evidence that, in any year since the last audit, if the Components in any Segment maintained through a PSMP had experienced more than 4% Countable Events, the entity had reduced the Countable Events to 4% or less of the population of that Segment within 3 years of the initial determination of the exceedance of 4%.
All PBM corrective action plans developed, and implemented by the entity since the last audit.
The actual Countable Events percentage experienced by all PBM Segments each year since the last audit.
Evidence that all Components within all PBM Segments were of a consistent design standard, or a particular model or type from a single manufacturer that typically share other common elements, in each Segment, in all years since the last audit.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.					
File Name	**Document Title**	**Revision or Version**	**Document Date**	**Relevant Page(s) or Section(s)**	**Description of Applicability of Document**

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to PRC-005-6, R2

This section to be completed by the Compliance Enforcement Authority

	(The following steps focus on validating that the technical basis developed by the Entity for initial use of performance-based Protection System Maintenance were developed in accordance with Requirement R2, PRC-005-6.)
	Select all, or a sample, of the performance-based Segments that were established under performance-based maintenance since the last audit.
	For each Segment selected, verify that the Segments were comprised of at least 60 Components.
	Validate that the entity developed lists with a description of Components included in each selected Segment, with a minimum Segment population of 60 Components.
	Verify that the Components within each selected Segment were of a consistent design standard, or are/were of a particular model or type from a single manufacturer that typically share other common elements.
	Validate that the entity maintained the Components in each selected Segment according to the time-based maximum allowable intervals and mandatory activities established in Tables 1-1 through 1-5, Table 3, Tables 4-1 thrugh 4-3, and Table 5, PRC-005-6 until results of maintenance activities for a minimum of 30 Components were available as part of the process to establish the Segment.
	Validate that the entity documented the maintenance program activities and results for each selected Segment, including maintenance dates and Countable Events for each included Component.
	Validate that the entity analyzed the maintenance activities and results to determine the overall performance for each selected Segment to develop maintenance intervals.
	Validate that the entity, in every year since the last audit, determined the maximum allowable maintenance interval for each Segment such that the Segment experiences Countable Events on no more than 4% of the Components within the Segment, for the greater of either the last 30 Components maintained or all Components maintained in the previous year.

	(The following steps focus on validating that the technical justifications developed by the entity for the ongoing use of the performance-based maintenance were developed in accordance with Requirement R2, PRC-005-6.)
	Select all, or a sample, of the designated performance-based designated Segments that were used by the entity in its performance-based maintenance program since the last audit.
	For each Segment selected, verify that the Segments were comprised of at least 60 Components, in each year since the last audit.
	Validate that the entity annually updated the list of Components and Segments and/or descriptions in the selected Segments if any changes occurred within the Segment, in every year since the last audit.
	Validate that the entity performed maintenance on at least the greater of 5% of the Components (addressed in the performance-based PSMP) in each selected Segment or 3 individual Components within the selected Segment in every year since the last audit.
	Validate that the entity analyzed the maintenance program activities and results for each selected Segment to determine the overall performance of the Segment, in every year since the last audit.
	Validate that the entity used the prior year's data, in every year since the last audit, to determine the maximum allowable maintenance interval for each Segment such that the Segment experiences Countable Events on no more than 4% of the Components within the Segment, for the greater of either the last 30 Components maintained or all Components maintained in the previous year.
	Validate that, if the Components in a Segment maintained through a performance-based PSMP experience more than 4% Countable Events in any year since the last audit, the entity developed, documented, and implemented an action plan to reduce the Countable Events to 4% or less of the Segment population within three years.
	Validate that, in all years since the last audit, if the Components in any Segment maintained through a PSMP had experienced more than 4% Countable Events, the entity had reduced the Countable Events to 4% or less of the population of that Segment within 3 years of the initial determination of the exceedance of 4%.
	Verify that the Components within each selected Segment were of a consistent design standard, or are or were of a particular model or type from a single manufacturer that typically share other common elements, in every year since the last audit.
Note to Auditor: Auditors should use their professional judgment in selecting all, or a sample, of the designated performance-based Segments that were maintained under performance-based maintenance since the last audit. Note that a flow chart covering the establishment and maintenance of performance-based programs is provided as Figure 1 to this RSAW.	

Auditor Notes:

R3 Supporting Evidence and Documentation

R3. Each Transmission Owner, Generator Owner, and Distribution Provider that utilizes time based maintenance programs(s) shall maintain its Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components that are included within the time-based maintenance program in accordance with the minimum maintenance activities and maximum maintenance intervals prescribed within Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5.

M3. Each Transmission Owner, Generator Owner, and Distribution Provider that utilizes time based maintenance programs(s) shall have evidence that it has maintained its Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components included within its time-based program in accordance with Requirement R3. The evidence may include, but is not limited to, dated maintenance records, dated maintenance summaries, dated check-off lists, dated inspection records, or dated work orders.

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Special Note to the Auditor:

Large entities subject to this Standard will typically own and maintain BES Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying Components comprised of many thousands of individual Components. Reliability Standard PRC-005-6 imposes multiple maintenance requirements pertaining to every individual Component. These extend to various mandatory maintenance intervals and to specific, obligatory detailed maintenance activities. Given the extensive population of Components, and the multiplicity of unique requirements applicable to each, sampling techniques may be required to ensure a manageable approach to auditing compliance with Requirement R3 for a large entity.

Other, smaller entities subject to this Standard will possess much smaller BES Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component populations. Examples could include smaller Distribution Providers and Generator Owners. Auditing the compliance of such smaller entities may require less emphasis on sampling.

Recognizing the above, two methods for auditing compliance with Requirement R3 are provided.

Method 3-1 is more typically applicable to larger entities with extensive BES Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component populations. This approach relies heavily on sampling techniques and pre-audit coordination with the entity. Method 3-2 may be used when auditing a smaller entity and relies less on sampling. Descriptions of both methods are provided.

The primary advantage of auditing using Method 3-1 is that it avoids the burden of assembling and addressing voluminous maintenance records which may not be needed. Obtaining evidence under Method 3-1 focuses on the early identification of those Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component records which will be examined as part of the audit. The auditor first examines summary level materials requested from the entity to determine those BES Facilities whose Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying Components will be audited. Information on some Components is requested as well. The list of Facilities and Components whose associated Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying Components will be audited is next provided by the auditor to the entity prior to the audit. The entity then assembles complete compliance documentation covering these identified systems and Components only. The auditor then assesses compliance based primarily on these records. (However, anomalies noted when reviewing these records may result in further auditing activity.)

The summary level materials initially requested from the entity may vary according to circumstances. Entity system diagrams, lists of Facilities by voltage level or capacity, lists of Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying Components, or other sources of information may be requested. Materials requested should provide a basis for selecting those BES Facilities whose Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying Components which will be audited. Examination of an entity system diagram, supported by other materials, may be sufficient to enable the auditor to identify BES Facilities, such as transmission tie lines, autotransformers, etc. The Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying Components associated with key Facilities can be selected for detailed audit, along with other Facilities to provide diversity in the population selected for audit.

Method 3-2 follows the same approaches generally used with previous Protection System maintenance Standards. The entity is required to provide complete documentation covering its maintenance of Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying Components either prior to, or during, the audit. The auditor conducts the audit by examining the records, or a sample of the records provided by the entity. This approach is generally applicable to smaller entities.

Auditing Compliance with PRC-005-6, Requirement R3, Method 3-1 (Larger Entities)

Evidence Requested[i], Method 3-1 (Larger Entities)

Prior to the audit, request the following evidence items, or other materials, sufficient to enable the auditor to identify BES elements. (The auditor will use these materials to select the BES Facilities whose Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components will be audited for compliance with PRC-005-6, Requirement R3.):

1. An electrical system diagram(s), covering all BES Facilities owned by the entity. Information will be provided enabling the auditor to identify Facilities being maintained under PRC-005-6, R3, TBM. The diagram will identify all entity BES Facilities, including but not limited to transmission lines,

substations, generators, circuit breakers, capacitor banks, shunt reactors, static var compensators, etc. The diagram(s) will identity the voltage-class, and the entity identifier of all Facilities. Other materials may be provided in lieu of the diagram as resolved with the entity.

2. A list of all Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components (maintained under TBM) whose maintenance intervals have been extended beyond those specified for unmonitored Components in accordance with Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5, PRC-005-6. Alternatively the entity could provide a list of substations or zones of protection in which maintenance intervals of Components have been extended by monitoring.

3. A brief description of the structure of entity's Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components maintenance data files for each Component Type. (Does the entity maintain Protection System records on a "zone of protection basis", by Facility, by station, or whatever structure is used)

4. A list of all Components associated with RAS Protection Systems (maintained under TBM, PRC-005-6 or later). Alternatively the entity could provide a list of substations or zones of protection which contain RAS Components.

5. A list of all Components associated with UFLS Protection Systems (maintained under TBM, PRC-005-6 or later). Alternatively the entity could provide a list of substations or zones of protection which contain UFLS Components. Distributed and non-distributed systems will be so identified.

6. A list of all Components associated with UVLS Protection Systems (maintained under TBM, PRC-005-6 or later). Alternatively the entity could provide a list of substations or zones of protection which contain UVLS Components. Distributed and non-distributed systems will be so identified.

(The entity will provide the following at the audit site (or as requested by the auditor) after the Auditor provides the list of BES Facilities whose Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying Components will be audited and/or the Components that will be audited.)

A tabulation, to be available at the audit site (or as requested by the auditor), providing the following information pertaining to the BES Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying Components associated with the BES Facility selected for audit by the auditor.

1. Entity protected BES element identification

2. Component Type

3. Station/Substation , or other location of the BES Facility

4. The Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components Identification

5. The dates of the last two performances of all maintenance activities, or all performances of maintenances activities since the last audit, whichever is greater. 6. The maintenance interval pertaining to the Component. 7. The specific rows of Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5 under which the Component is being maintained
Evidence, to be available at the audit site (or as requested by the auditor), that the Components and associated Alarm Paths actually have the attributes identified in PRC-005-6, Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5, justifying the maintenance interval and the scope of maintenance activities being performed.
Evidence, to be available at the audit site (or as requested by the auditor), for either the most recent performance of all maintenance activities, where the maintenance interval is longer than the audit cycle, or all performances of maintenance activities since the last audit, where the maintenance internal is shorter than the audit cycle, that the maintenance performed on the date(s) provided, was in fact performed on the date(s) reported, and that the specific activities performed satisfied the minimum maintenance activities requirements of Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5, PRC-005-6. The evidence may include but is not limited to dated maintenance records, dated maintenance summaries, dated check-off lists, dated inspection records, or dated work orders.
Evidence, to be available at the audit site (or as requested by the auditor), that the alarm paths of those Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components whose maintenance intervals have been extended based upon monitoring and whose mandatory maintenance activities are based upon monitoring have been maintained in accordance with Table 2.
The number of BES Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components possessed by the entity, by Component Type, to be available at the audit site (or as requested by the auditor).
Evidence that the entity has transitioned its Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component maintenance from PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0 to PRC-005-6 in accordance with the PRC-005-6 Implementation Plan**,** to enable verification that the required percentage of Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components have been transitioned to PRC-005-6 or later**.**

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.					
File Name	**Document Title**	**Revision or Version**	**Document Date**	**Relevant Page(s) or Section(s)**	**Description of Applicability of Document**

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to PRC-005-6, R3, Method 3-1 (Larger Entities)
This section to be completed by the Compliance Enforcement Authority

	Verify that all, or a sample of, the Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components included within the time-based maintenance program were maintained in accordance with the minimum maintenance activities and maximum maintenance intervals prescribed in Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5. Consider validating a sample of reporting dates and activities performed by examining actual field data.
	Validate that the Components and Alarm Paths actually have the monitoring attributes identified in PRC-005-6, Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5, justifying the extension of the applicable maintenance interval and the scope of maintenance activities being performed.
	Validate that the alarm paths of those Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components whose maintenance intervals have been extended, or whose mandatory activities are based upon monitoring, have been maintained in accordance with Table 2.
	Understand the entity's plan for transitioning its Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance from PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0 to PRC-005-6 in accordance with the PRC-005-6 Implementation Plan. For Components selected for testing, obtain reasonable assurance that such sample reflects transitioning to PRC-005-6 (or later) in terms of percentages maintained under PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0 versus PRC-005-6 (or later) in accordance with the Implementation Plan.
Notes to Auditor: The auditor should evaluate the maintenance program activities by first reviewing summary records of testing, detailing performance of the required time-based maintenance in accordance with Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5, PRC-005-6. Validation of the summary information can be accomplished by identifying, through sampling, a number of individual Components and reviewing the supporting evidence such as actual field maintenance or inspection records prepared by field personnel, completed work orders, or other documentation.	

Auditor Notes:

Auditing Compliance with PRC-005-6, Requirement R3, Method 3-2.
Evidence Requested[i], Method 3-2, (Smaller Entities)

Provide the following evidence, or other evidence to demonstrate compliance.
A list of all of the entity's Protection System Components being maintained under PRC-005-6 (or later) time-based maintenance programs providing: 1. Entity protected BES Element identification

2. Component Type

3. Station/Substation , or other location of the BES Facility

4. The Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component Identification

5. The dates of the last two performances of all maintenance activities, or all performances of maintenances activities since the last audit, whichever is greater

6. The maintenance interval pertaining to the Component or Path.

7. The specific row of Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5 under which the Component is being maintained

8. Whether the Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component maintenance intervals have been extended beyond those specified for unmonitored Components in accordance with Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5, PRC-005-6.

9. Indication if the Component is associated with RAS.

10. Indication if the Component is associated with UFLS.

11. Indication if the Component is associated with UVLS.

Evidence to be available at the audit site (or as requested by the auditor) that the Components and associated Alarm Paths actually have the attributes identified in PRC-005-6, Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5, justifying the maintenance interval and the scope of maintenance activities being performed.

Evidence, to be available at the audit site (or as requested by the auditor), for either the most recent performance of all maintenance activities, where the maintenance interval is longer than the audit cycle, or all performances of maintenance activities since the last audit, where the maintenance internal is shorter than the audit cycle, that the maintenance performed on the dates provided, was in fact performed on the dates reported, and that the specific activities performed satisfied the minimum maintenance activities requirements of Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5, PRC-005-6. The evidence may include but is not limited to dated maintenance records, dated maintenance summaries, dated check-off lists, dated inspection records, or dated work orders.

Evidence, to be available at the audit site (or as requested by the auditor), that the alarm paths of those Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components whose maintenance intervals have been extended based upon monitoring and whose mandatory maintenance activities are based upon monitoring have been maintained in accordance with Table 2.

The number of BES Components maintained by the entity, by Component Type.

Evidence that the entity has transitioned its Protection System, Automatic Reclosing, and Sudden Pressure Relaying maintenance from PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0 to PRC-005-6 (or later) in accordance with the PRC-005-6 Implementation Plan**,** to enable verification that the required percentage of Protection System Components have been transitioned to PRC-005-6 (or later)**.**

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.					
File Name	**Document Title**	**Revision or Version**	**Document Date**	**Relevant Page(s) or Section(s)**	**Description of Applicability of Document**

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to PRC-005-6, R3, Method 3-2

This section to be completed by the Compliance Enforcement Authority

	Verify that all, or a sample of, the Protection, Automatic Reclosing, and Sudden Pressure Relaying System Components included within the time-based maintenance program were maintained in accordance with the minimum maintenance activities and maximum maintenance intervals prescribed in Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5. Consider validating a sample of reporting dates and activities performed by examining actual field data.
	Validate that the Components and Alarm Paths actually have the monitoring attributes identified in PRC-005-6, Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5, justifying the extension of the applicable maintenance interval (If any) and the scope of maintenance activities being performed.
	Validate that the alarm paths of those Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components whose maintenance intervals have been extended, or whose mandatory activities are based upon monitoring, have been maintained in accordance with Table 2.
	Understand the entity's plan for transitioning its Protection System Maintenance from PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0 to PRC-005-6 in accordance with the PRC-005-6 Implementation Plan. For Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components selected for testing, obtain reasonable assurance that such sample reflects transitioning to PRC-005-6 (or later) in terms of percentages maintained under PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0 versus PRC-005-6 (or later) in accordance with the Implementation Plan.
Notes to Auditor: The auditor should evaluate the maintenance program activities by first reviewing summary records detailing performance of the required time-based maintenance in accordance with Tables	

1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5, PRC-005-6. Validation of the summary information can be accomplished by identifying, through sampling, a number of individual Components and reviewing supporting evidence such as actual field maintenance or inspection records prepared by field personnel, completed work orders, or other documentation.

Auditor Notes:

R4 Supporting Evidence and Documentation

R4. Each Transmission Owner, Generator Owner, and Distribution Provider that utilizes performance-based maintenance program(s) in accordance with Requirement R2 shall implement and follow its PSMP for its Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components that are included within the performance-based program(s).

M4. Each Transmission Owner, Generator Owner, and Distribution Provider that utilizes performance-based maintenance intervals in accordance with Requirement R2 shall have evidence that it has implemented the PSMP for the Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components included in its performance-based program in accordance with Requirement 4. The evidence may include but is not limited to dated maintenance records, dated maintenance summaries, dated check-off lists, dated inspection records, or dated work orders.

Registered Entity Response (Required):
Question: Has entity used performance-based maintenance (PBM) during the compliance monitoring period?
☐ Yes ☐ No
[If Yes, see proceed to the Compliance Narrative section below. If No, Requirement R4 is not applicable.]
[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

Registered Entity Response (Required):
Compliance Narrative:
Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requested[i]:

Larger entities may have established extensive PBM programs, with thousands of Components being included in many PBM Segments. In such circumstances, it is recommended that compliance with Requirement R4 be assessed by examining a sample of the PBM Segments maintained or established by the entity. A two-step process is recommended. First, the auditor obtains a list of all PBM Segments maintained or established by the entity since the last audit, with supporting information as identified below. Following examination of this material, the auditor identifies those PBM Segments which will be reviewed during the audit and informs the entity. In turn, the entity then ensures that the additional materials identified below covering only the Segments selected for auditing are available during, or prior to, the audit, or as specified by the auditor.
Provide the following evidence, or other evidence to demonstrate compliance.
Well prior to the audit, a tabulation of all of the Segments of the Protection System that were established and/or maintained as part of performance-based maintenance since the last audit. The list shall identify for all Segments, a Segment Title, the Component Type, the number of Components included in the Segment, and the time periods in which the Segment was being established, and/or was being used, as part of the performance-based Protection System Maintenance Program. (This is also required for Requirement 2).

(Upon receipt of the above, the auditor will select those Segments which will be audited and so advise the entity. The entity will provide the following materials at the audit site (or as requested by the auditor).

Tabulations for each entity selected Segment selected for review by the auditor containing the following:

1. Segment Title
2. Component Type
3. The entity Identification all Components comprising the Segment
4. For each Segment Component, the Component Station/Substation , or other BES locations
5. For each Segment Component, the dates of the last two performances of all maintenance activities, or all performances of maintenances activities since the last audit, whichever is greater
6. The maintenance interval pertaining to the Segment for all time periods during which the Segment was being maintained since the last audit, and the Interval in use during the year prior to the last audit.
7. The specific row of Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5 under which the Components are being maintained

Evidence, to be available at the audit site (or as requested by the auditor), that each Component in the selected Segments being maintained under PRC-005-6 (or later), performance-based maintenance, has the attributes required by the PRC-005-6 Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5 justifying use of the minimum maintenance activities being performed by the entity for the particular Component.

Evidence, to be available at the audit site (or as requested by the auditor), for either the most recent performance of all maintenance activities, where the maintenance interval is longer than the audit cycle, or all performances of maintenance activities since the last audit, where the maintenance internal is shorter than the audit cycle, that the maintenance performed on the dates provided, on the Components in the selected Segments, was in fact performed on the dates reported, and that the specific activities performed satisfied the minimum maintenance activities requirements of Tables 1-1 through 1-5, Table 2, Table 3, Table 4-1 through 4-3, and Table 5. The evidence may include but is not limited to dated maintenance records, dated maintenance summaries, dated check-off lists, dated inspection records, or dated work orders.

Evidence, to be available at the audit site (or as requested by the auditor), that alarm paths associated with the Components in those Segments selected for review, were maintained in accordance with Table 2, PRC-005-6, where monitoring was being used to determine the applicable mandatory maintenance activities.

Evidence, to be available at the audit site (or as requested by the auditor), that the entity has transitioned its Protection System maintenance from PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0 to PRC-005-6 in

accordance with the PRC-005-6 Implementation Plan, to enable verification that the required percentage of protection system components have been transitioned to PRC-005-6 (or later).

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.					
File Name	**Document Title**	**Revision or Version**	**Document Date**	**Relevant Page(s) or Section(s)**	**Description of Applicability of Document**

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to PRC-005-6, R4

This section to be completed by the Compliance Enforcement Authority

	Select all, or a sample, of the PBM Segments that were established or maintained since the last audit, which will comprise the Segments selected for review.
	Verify that all, or a sample of the Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components in those Segments selected for review, were maintained in accordance with the PBM time intervals in effect.
	Verify that all, or a sample, of the alarm paths associated with the Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components in those Segments selected for review were maintained in accordance with Table 2, PRC-005-6, where monitoring was used to determine the maintenance activities performed on the Component.
	Verify that the entity can provide supporting documentation that mandatory PBM maintenance activities reported as completed were in fact performed on the Components within the selected Segments.
	Understand the entity's plan for transitioning its Protection System Maintenance from PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0 to PRC-005-6 (or later) in accordance with the PRC-005-6 Implementation Plan. For Components selected for testing, obtain reasonable assurance that such sample reflects transitioning to PRC-005-6 (or later) in terms of percentages maintained under PRC-005-1, PRC-008-0, PRC-011-0, and PRC-017-0 versus PRC-005-6 (or later) in accordance with the Implementation Plan.
	Note to Auditor: The auditor should evaluate the maintenance program activities by first reviewing summary records detailing performance of the required performance-based maintenance in accordance with the established PBM Intervals. Validation of the summary information can be accomplished by

	identifying, through sampling, a number of individual Components and reviewing supporting evidence such as actual field maintenance or inspection records prepared by field personnel, completed work orders, or other documentation. It also should be noted that, since maintenance intervals can vary every year in a PBM program, verification that maintenance activities were performed as required by the applicable time interval may be complex

Auditor Notes:

R5 Supporting Evidence and Documentation

R5. Each Transmission Owner, Generator Owner, and Distribution Provider shall demonstrate efforts to correct identified Unresolved Maintenance Issues.

M5. Each Transmission Owner, Generator Owner, and Distribution Provider shall have evidence that it has undertaken efforts to correct identified Unresolved Maintenance Issues in accordance with Requirement R5. The evidence may include but is not limited to work orders, replacement Component orders, invoices, project schedules with completed milestones, return material authorizations (RMAs) or purchase orders.

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requested[i]:

Provide the following evidence, or other evidence to demonstrate compliance.
A list of all identified Unresolved Maintenance Issues encountered by the entity since the last audit. The list will include an issue identification and the date the Registered Entity identified the issue as an Unresolved Maintenance Issue.
Specific, actual entity documentation of efforts to correct each identified Unresolved Maintenance Issue. This evidence may include but is not limited to copies of Component orders, work order documentation, invoices, project schedules with completed milestones, return material authorizations (RMAs), purchase orders, procedure and/or test results.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.					
File Name	**Document Title**	**Revision or Version**	**Document Date**	**Relevant Page(s) or Section(s)**	**Description of Applicability of Document**

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to PRC-005-6, R5

This section to be completed by the Compliance Enforcement Authority

	Select all, or a sample, of the identified Unresolved Maintenance Issues identified by the entity in the list of all identified Unresolved Maintenance Issues.
	Review evidence and verify the entity demonstrated efforts to correct the identified Unresolved Maintenance Issues.
Note to Auditor: Evidence of entity efforts to resolve Unresolved Maintenance Issues should be obtained and evaluated prior to the audit. The Auditor should consider cross checking the evidence with other Protection System records provided by the entity, such as maintenance completion date evidence for those Components reported as identified Unresolved Maintenance Issues. During the on-site audit, the Auditor should determine if the entity has updated either the list of identified Unresolved Maintenance Issues or its evidence of its correction efforts. If so, the updates should be obtained before final evaluation of the evidence.	

Auditor Notes:

Additional Information

Reliability Standard

In addition to the Reliability Standard, there is an applicable Implementation Plan available on the NERC website.

In addition to the Reliability Standard, there is background information available on the NERC website.

Capitalized terms in the Reliability Standard refer to terms in the NERC Glossary, which may be found on the NERC website.

Sampling Methodology

Sampling is essential for auditing compliance with NERC Reliability Standards since it is not always possible or practical to test 100% of either the equipment, documentation, or both, associated with the full suite of enforceable standards. The Sampling Methodology Guidelines and Criteria (see NERC website), or sample guidelines, provided by the Electric Reliability Organization help to establish a minimum sample set for monitoring and enforcement uses in audits of NERC Reliability Standards.

Regulatory Language

Revision History for RSAW

Version	Date	Reviewers	Revision Description
1	08/13/2015	NERC Compliance Assurance, RSAW Task Force, Standards Drafting Team	New document based on PRC-005-2. Draft RSAW, posted with draft Reliability Standard – Posting 30 July 2015

[i] Items in the Evidence Requested section are suggested evidence that may, but will not necessarily, demonstrate compliance. These items are not mandatory and other forms and types of evidence may be submitted at the entity's discretion.

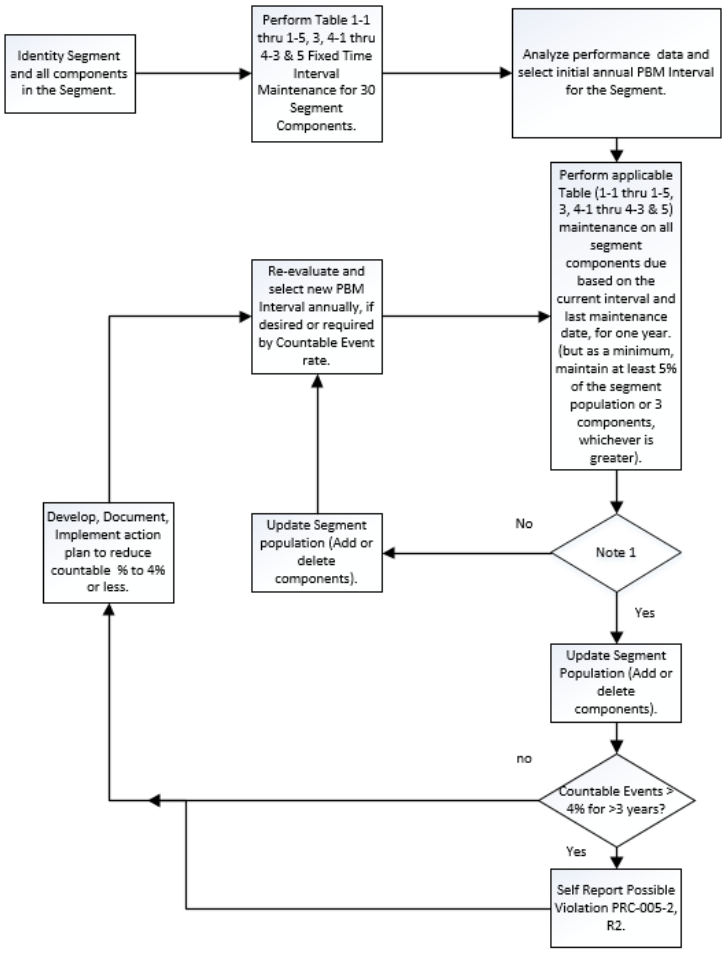

Figure 1
PRC-005-6
RSAW

Performance-Based Maintenance

Establishment and Maintenance of Performance-Based Maintenance for One Segment

Some Other Requirements:
1. % tested must be >= 5% of segment.
2. Segment > = 60 units
3. Yearly analysis sample = Units tested last year or last 30 units tested, whichever is greater.
4. If Countable Events in a year > 4%, must reduce to < = 4% in 3 years

Note 1: At end of the year, are the Countable Events more than 4% of the Components within the Segment, for the greater of either the last 30 Components maintained or all Components maintained in the previous year?