

**Supplemental Version 1 Violation Risk Factors for Standards
FAC-003-1, COM-002-2, and PRC-005-1**

Violation Risk Factors — Supplemental Version 1 Standards Pre-ballot Matrix

The following table lists the Violation Risk Factors (VRFs) for the requirements in the following Version 1 standards that have heretofore not been assigned:

FAC-003-1 — Transmission Vegetation Management Program

COM-002-2 — Communication and Coordination

PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing

FAC-003-1 — Transmission Vegetation Management Program

Justification for Violation Risk Factor Rating: consistent with the risk factor assignment for the version 0 version of this standard, FAC-003-0, all requirements pertaining to the vegetation management program, the annual work plan, and clearances were designated in the “High” category. Requirements pertaining to the tracking and reporting of vegetation-related outages were assigned a “Lower” rating. Additionally, the “HIGH” rating is appropriate when considering the definition of a HIGH violation risk factor: a requirement that if violated could directly lead to or contribute to widespread outages or cascading failures. Clearly, the failure to have a vegetation management program with appropriate clearances, and an annual work plan could directly (and has) contribute to widespread outages.

Standard	Requirement		Violation Risk Factor
FAC-003-1	R1	The Transmission Owner shall prepare, and keep current, a formal transmission vegetation management program (TVMP). The TVMP shall include the Transmission Owner’s objectives, practices, approved procedures, and work specifications.	HIGH
FAC-003-1	R1.1	The TVMP shall define a schedule for and the type (aerial, ground) of ROW vegetation inspections. This schedule should be flexible enough to adjust for changing conditions. The inspection schedule shall be based on the anticipated growth of vegetation and any other environmental or operational factors that could impact the relationship of vegetation to the Transmission Owner’s transmission lines.	HIGH
FAC-003-1	R1.2	The Transmission Owner, in the TVMP, shall identify and document clearances between vegetation and any overhead, ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway. Specifically, the Transmission Owner shall establish clearances to be achieved at the time of vegetation management work identified herein as Clearance 1, and shall also establish and maintain a set of clearances identified herein as Clearance 2 to prevent flashover between vegetation and overhead ungrounded supply Conductors.	HIGH
FAC-003-1	R1.2.1	Clearance 1 — The Transmission Owner shall determine and document appropriate clearance distances to be achieved at the time of transmission vegetation management work based upon local	HIGH

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Standard	Requirement		Violation Risk Factor
		conditions and the expected time frame in which the Transmission Owner plans to return for future vegetation management work. Local conditions may include, but are not limited to: operating voltage, appropriate vegetation management techniques, fire risk, reasonably anticipated tree and conductor movement, species types and growth rates, species failure characteristics, local climate and rainfall patterns, line terrain and elevation, location of the vegetation within the span, and worker approach distance requirements. Clearance 1 distance shall be greater than those defined by Clearance 2 below.	
FAC-003-1	R1.2.2	Clearance 2 — The Transmission Owner shall determine and document specific radial clearances to be maintained between vegetation and conductors under all rated electrical operating conditions. These minimum clearance distances are necessary to prevent flashover between vegetation and conductors and will vary due to such factors as altitude and operating voltage. These Transmission Owner-specific minimum clearance distances shall be no less than those set forth in the Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003 (<i>Guide for Maintenance Methods on Energized Power Lines</i>) and as specified in its Section 4.2.2.3, Minimum Air Insulation Distances without Tools in the Air Gap.	HIGH
FAC-003-1	R1.2.2.1	Where transmission system transient over voltage factors are not known, clearances shall be derived from Table 5, IEEE 516-2003, phase-to-ground distances, with appropriate altitude correction factors applied.	HIGH
FAC-003-1	R1.2.2.2	Where transmission system transient over voltage factors are known, clearances shall be derived from Table 7, IEEE 516-2003, phase-to-phase voltages, with appropriate altitude correction factors applied.	HIGH
FAC-003-1	R1.3	All personnel directly involved in the design and implementation of the TVMP shall hold appropriate qualifications and training, as defined by the Transmission Owner, to perform their duties.	HIGH
FAC-003-1	R1.4	Each Transmission Owner shall develop mitigation measures to achieve sufficient clearances for the protection of the transmission facilities when it identifies locations on the ROW where the Transmission Owner is restricted from attaining the clearances specified in Requirement 1.2.1.	HIGH
FAC-003-1	R1.5	Each Transmission Owner shall establish and document a process for the immediate communication of vegetation conditions that present	HIGH

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Standard	Requirement		Violation Risk Factor
		an imminent threat of a transmission line outage. This is so that action (temporary reduction in line rating, switching line out of service, etc.) may be taken until the threat is relieved.	
FAC-003-1	R2.	The Transmission Owner shall create and implement an annual plan for vegetation management work to ensure the reliability of the system. The plan shall describe the methods used, such as manual clearing, mechanical clearing, herbicide treatment, or other actions. The plan should be flexible enough to adjust to changing conditions, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems. Adjustments to the plan shall be documented as they occur. The plan should take into consideration the time required to obtain permissions or permits from landowners or regulatory authorities. Each Transmission Owner shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.	HIGH
FAC-003-1	R3.	The Transmission Owner shall report quarterly to its RRO, or the RROs designee, sustained transmission line outages determined by the Transmission Owner to have been caused by vegetation.	LOWER
FAC-003-1	R3.1	Multiple sustained outages on an individual line, if caused by the same vegetation, shall be reported as one outage regardless of the actual number of outages within a 24-hour period.	LOWER
FAC-003-1	R3.2	The Transmission Owner is not required to report to the RRO, or the RRO's designee, certain sustained transmission line outages caused by vegetation: (1) Vegetation related outages that result from vegetation falling into lines from outside the ROW that result from natural disasters shall not be considered reportable (examples of disasters that could create non-reportable outages include, but are not limited to, earthquakes, fires, tornados, hurricanes, landslides, wind shear, major storms as defined either by the Transmission Owner or an applicable regulatory body, ice storms, and floods), and, (2) Vegetation-related outages due to human or animal activity shall not be considered reportable (examples of human or animal activity that could cause a non-reportable outage include, but are not limited to, logging, animal severing tree, vehicle	LOWER

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Standard	Requirement		Violation Risk Factor
		contact with tree, arboricultural activities or horticultural or agricultural activities, or removal or digging of vegetation).	
FAC-003-1	R3.3	The outage information provided by the Transmission Owner to the RRO, or the RRO's designee, shall include at a minimum: the name of the circuit(s) outaged, the date, time and duration of the outage; a description of the cause of the outage; other pertinent comments; and any countermeasures taken by the Transmission Owner.	LOWER
FAC-003-1	R3.4	An outage shall be categorized as one of the following:	LOWER
FAC-003-1	R3.4.1	Category 1 — Grow-ins: Outages caused by vegetation growing into lines from vegetation inside and/or outside of the ROW;	LOWER
FAC-003-1	R3.4.2	Category 2 — Fall-ins: Outages caused by vegetation falling into lines from inside the ROW;	LOWER
FAC-003-1	R3.4.3	Category 3 — Fall-ins: Outages caused by vegetation falling into lines from outside the ROW.	LOWER
FAC-003-1	R4.	The RRO shall report the outage information provided to it by Transmission Owner's, as required by Requirement 3, quarterly to NERC, as well as any actions taken by the RRO as a result of any of the reported outages.	LOWER

COM-002-2 — Communication and Coordination

Justification for Violation Risk Factor Rating: the "MEDIUM" risk factor designation was selected because, by definition, the requirement, if violated, could directly affect the electrical state or the capability of the bulk power system, or the ability to effectively monitor and control the bulk power system, but is unlikely to lead to bulk power system instability, separation, or cascading failures. In particular, this requirement, if violated, could affect the ability to effectively monitor or control the bulk power system, but by itself, if not likely to lead to widespread or cascading failures.

COM-002-2	R2	Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall issue directives in a clear, concise, and definitive manner; shall ensure the recipient of the directive repeats the information back correctly; and shall acknowledge the response as correct or repeat the original statement to resolve any misunderstandings.	MEDIUM
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PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing

Justification for Violation Risk Factor Rating: To maintain consistency with the risk factor assignment for other requirements in this standard pertaining to the maintenance and testing work plan and the date equipment was last tested and maintained, and to acknowledge that widespread system outages are possible if maintenance and testing is not performed, this requirement was rated "HIGH".

PRC-005-1	R2.1	Evidence Protection System devices were maintained and tested within the defined intervals.	HIGH
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March 22, 2007

Amendment to Urgent Action SAR for Supplemental V1 Violation Risk Factors

FAC-010-1 — System Operating Limits Methodology for the Planning Horizon

Violation Risk Factor added for R2.3.2 — MEDIUM

Justification: All other sub-requirements in R2.3 of this standard included an approved violation risk factor of MEDIUM as is proposed for R2.3.2.

- R2.3 Starting with all Facilities in service, the system's response to a single contingency may include any of the following: (Violation Risk Factor: MEDIUM)
 - R2.3.1 Planned or controlled interruption of electric supply to radial customers or some local network customers connected to or supplied by the Faulted Facility or by the affected area. (Violation Risk Factor: MEDIUM)
 - R2.3.2 System reconfiguration through manual or automatic control or protection actions. (Violation Risk Factor: MEDIUM)
 - R2.3.3 To prepare for the next Contingency, system adjustments may be made, including changes to generation, uses of the transmission system, and the transmission system topology. (Violation Risk Factor: MEDIUM)

FAC-014-1 — Establish and Communicate System Operating Limits

Violation Risk Factor added for R6 — MEDIUM

Justification: All other sub-requirements in R6 of this standard included an approved violation risk factor of MEDIUM as is proposed for R6.2.

- R6. The Planning Authority shall identify the subset of multiple contingencies (if any), from Reliability Standard TPL-003 which result in stability limits. (Violation Risk Factor: MEDIUM)
 - R6.1. The Planning Authority shall provide this list of multiple contingencies and the associated stability limits to the Reliability Coordinators that monitor the facilities associated with these contingencies and limits. (Violation Risk Factor: MEDIUM)
 - R6.2. If the Planning Authority does not identify any stability-related multiple contingencies, the Planning Authority shall so notify the Reliability Coordinator. (Violation Risk Factor: MEDIUM)