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***Procedures for Monitoring and Reporting  
Critical Operating Tool Failures***

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## 1. Introduction

The purpose of this document is to outline the reporting requirements, responsibilities and obligations of the NPCC Reliability Coordinators (RCs), Balancing Authorities (BAs), Transmission Owners (TOs), and Transmission Operators (TOPs) [responsible entities] in response to failures of the operating tools identified in Section 2 (Identification of Critical Operating Tools and Systems) to evaluate failures of these tools and systems from the stand point of identifying lessons learned.

This document will provide:

- 1) A list of the operating tools and systems whose failure requires completion of a Critical Operating Tool Failure Form,
- 2) The reporting requirements,
- 3) A Critical Operating Tool Failure Form(Appendix A) to allow an affected responsible entity to notify NPCC of a critical operating tool or system failure. NPCC will forward the form to CO-8, CO-10 and TFCO, and
- 4) A process to analyze the failure of critical operating tools and systems to identify lessons learned and trends where applicable to help prevent future common failures.

## 2. Identification of Critical Operating Tools and Systems

Various operating tools and systems provide the information used to monitor, assess and respond to power system problems including those RC critical operating tools and systems that are dependent on input or support from Transmission Operators and Transmission Owners. The normal function of these tools and systems allow the monitoring of the Bulk Power System (BPS) under a wide range of operating conditions. Each responsible entity should report the failure of the following monitoring and analysis tools:

- 1) Primary Voice Communication System  
*Primary Voice Communication System is the communication system that is used for the real time operating function.*
- 2) Backup Power Supply  
*The loss of any backup supply element that results in an interruption to power supply for critical operating tools, Backup supply includes Uninterruptible Power Supplies and emergency generation .*

3) Primary Tool Set

a) Real-Time Data Collection

*The real time data collected by telemetry (SCADA or ICCC) for use in EMS to monitor the BPS.*

b) Alarm Tools

*Alarm tools are applications that emit real-time visible and audible signals to alert system operators to events and conditions affecting the state of the BPS.*

c) Visualization Tools

*Visualization tools allow system operators to view large amounts of data directly. Each responsible entity has different types of visualization tools (i.e. SCADA one-line displays, State Estimator one-line displays, reserve monitoring application and dynamic mapboards etc...)*

d) Network Topology Processor

*Network Topology Processor (NTP) validates the accuracy of data collection and electrical connectivity. NTP configuration model provides input to other system monitoring tools such as contingency analysis and State Estimator.*

e) State Estimator

*State Estimator models the real time system in order to provide an estimate of its state.*

f) Contingency Analysis

*Contingency Analysis tools identify problems such as stability or thermal limit violations, or voltage collapse that will occur if a contingency happens.*

g) Any other reliability tools

*Other operational tools deemed critical as determined by the responsible entity for monitoring and analyzing the BPS.*

**3. Reporting Requirements for Failure of Critical Tools**

The failure of any critical tools indicated above requires notification and a follow-up report if the failed state exists longer than 30 minutes.

The reporting requirements are as follows:

1. The affected responsible entity will provide initial notification using Appendix A within 10 business days of the tool failure to c17@npcc.org. The report shall identify the date and times of the failure as well as the failure type and summary. To avoid duplication in reporting, an initial Appendix A shall not be required if the reporting entity has submitted a Brief Report required for the NERC Event Analysis Process.

2. The affected responsible entity will provide a final report using Appendix A to c17@npcc.org within 60 calendar days of the tool failure. The report shall identify the definitive cause of the failure, conclusions, corrective actions taken and any lessons learned.
3. The CO-10 Working Group will monitor and track critical operating tool failures by maintaining a Critical Operating Tool Failure Summary Report. CO-10 will then determine if there are any region-wide trends from the reported tool failures that are deemed relevant to other responsible entities and forward those to TFCO.

#### **4. Non-Reportable Events**

It is recognized that operating tool or system problems occur that are determined to be minimal in nature or do not exceed the timing guidelines above. For these failures, responsible entities are encouraged to share their experiences for the mutual benefit of others. A non-reportable event checkbox has been provided on the Appendix A reporting form for this purpose.

Prepared by: CO-10 – Operational Tools Working Group  
Review frequency: 3 years

References: *NPCC Glossary of Terms* (Document A-7)

**NPCC**

**C-17 Appendix A**

**CRITICAL OPERATING TOOL FAILURE FORM**

Submit to : [c17@npcc.org](mailto:c17@npcc.org)

- Initial (Submitted within 10 days of event) MM/DD/YYYY**
- Final (With Conclusion Submitted within 60 days of event) MM/DD/YYYY**
- Non reportable event (for information only) MM/DD/YYYY**

Submitting Entity:	
Contact Person:	
Affected Organization:	
Event Time/Date:	
Mitigated Time / Date:	
Closed Time / Date:	
<b>1) TYPE OF FAILURE:</b>	
<b>2) FAILURE SUMMARY:</b>	
<b>3) CAUSE OF FAILURE:</b>	
	<input type="checkbox"/> <b>Details to Follow</b>
<b>4) CONCLUSION and CORRECTIVE/MITIGATION ACTION:</b>	
	<input type="checkbox"/> <b>Details to Follow</b>
<b>LESSONS LEARNED (if any) :</b>	
	<input type="checkbox"/> <b>N/A</b>