Get Control of Yourself

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Documenting Real-time Assessment Internal Controls

If you've ever had the opportunity to listen to an RF presentation on internal controls, you know that documenting your controls is essential. If the control isn't documented, how can you be consistent? However, that's often easier said than done.

Real-time assessments (RTAs) are a critical activity within our industry. They're integral to grid reliability – so integral that a number of Standards address them, including TOP-010-1(i), TOP-001-4, IRO-010-2, and CIP-012-1, to name a few. How you perform RTAs should be a documented internal control process, but where and how do you begin?

Before I begin, remember that this control outline may not speak to exactly how your organization performs RTAs, but you should be able to translate this to ensure your practice matches your process.

The NERC Glossary of Terms defines an RTA as "an evaluation of system conditions using Real-time data to assess existing (pre-Contingency) and potential (post-Contingency) operating conditions." Additionally, some Standards require the performance of this process at least once every 30 minutes. An RTA is a (human) assessment of the information provided by a Real-time Contingency Analysis (RTCA) and State Estimator (SE), along with other information. Thus, if the RTCA or SE goes down, an RTA must still occur.

Often when a control is performed utilizing technology (i.e., SE, RTCA), there is a misunderstanding that the risk has been fully mitigated. However, as we all know, technology is only as good as the data it has to work with. We do not have any "plug and play" technology that requires no human interaction; therefore, we must mitigate the human factor.

In the past, organizations focused on providing evidence of compliance by providing a log showing that the RTA took place every 30 minutes. With a risk and control mindset, the focus shifts to how (and how well) your organization determines all the appropriate criteria is included, that quality data is used, and that you perform an appropriate analysis. Additionally, how did you determine what constituted sufficient monitoring or if there are defined ranges of tolerances with actionable steps to address gaps in Situational Awareness?

Appropriate determination of these criteria could depend on a number of factors, but I will focus on only one. Do you have a clear understanding of the RTA expectations and their risk exposure? A clear understanding of expectations is critical to ensure proper analysis. Do you understand all the components of an RTA (i.e., what is Real-time and Real-time data)? Truly understanding your RTA components is imperative to determine all your criteria.

What Should be Included in an RTA?

Documenting the determination of the appropriate elements and Real-time data is required in order to establish a baseline and provide for consistency. Your control documentation might include:

1. Who was involved in determining the elements and Real-time data included in the studies? (i.e., cross functional team)
    a. Note: if a cross-functional team (segregation of duties) is not possible, then ensure that a review by a knowledgeable party is included throughout the process.

2. What qualified their participation? (i.e., PE, protection system specialist)

3. Document considerations for determining the elements and Real-time data used in the study (i.e., neighboring facilities). This might include an impact study with clear thresholds for inclusion (i.e., 5% distribution factor), Real-time weather data, load, etc.
    a. Begin with a clear definition of your RTA; what is it composed of?
    b. What constitutes "good" data, and what is the acceptable range signifying sufficient data?
    c. What happens if the data source goes down? What if you are running your own RTCA and it goes down?
    d. If the data is from an outside source, how are you ensuring the data is sufficient? (i.e., annual questionnaire of suppliers' controls?)
        i. Additionally, you should include mutually agreed upon communication methods and timing of when data is provided.
    e. If you are unable to perform your RTA, what happens?

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4. Document how the contingencies included in the studies were determined (i.e., stuck breaker, delayed clearing, N-1-1, N-G-1). Document those contingencies considered but not included, as well as the reasoning behind why they were not included.

5. Define and document a root cause process for unsolved contingencies (i.e., determining a simulated instability vs. a steady-state issue).

6. Are there additional studies to validate or support the RTA? (i.e., if Inverter Based Resources are involved, should a transient stability study with current SE solutions also be running?)

7. How are models managed/maintained? Include both a defined change management control[1] and a defined review process (i.e., telemetry reviewed annually).
    a. Models expanding beyond your footprint; how do you ensure the model is accurate?

8. Define analysis expectations. Simply running the studies isn't enough. You also should define what the operators are expected to review (within reason). Not every contingency can be defined, but people with knowledge of the system should be able to identify the most critical/common.
    a. Address SOL exceedances.
    b. Include documentation expectations. Documentation provides assurance the activity occurred and evidence of control performance during your monitoring or CEA engagements.

9. Is overlapping coverage part of the RTA? If it is, include mutually agreed upon, clear expectations regarding who is looking at what, who has decision-making authority, etc.

10. How frequently is the entire RTA process reviewed? Is annually enough or too much? That depends and should be spelled out as to why the determined timeframe was selected.

11. The RTA process should be called out for review during **any** changes that are performed on the system (and MUST be included in the organization's Change Management Control).
    a. If neighboring entity information is included in the models, clear understanding and notification of changes to **their** system is required. How do you ensure that happens? Is there a quarterly/bi-annual/annual inquiry with all parties?
        i. Note: whenever you are relying on data not under your control, you must perform some form of due diligence to ensure the sufficiency of the data.

12. Whenever manual intervention occurs with the RTA tools (i.e., data entry), include a reconciliation to ensure the data entered matches the approved source documentation.

13. Finally, define monitoring expectations.

I hope this outline helps you establish your RTA internal controls. Remember, the cost of the control should never exceed the benefit. In other words, be sure you are mitigating YOUR risk.

Until next time, be kind to each other and get control of yourself!

[1] See 2019 July/August newsletter (Gaps in Program Execution) for change management controls