Get Control of Yourself!

By Denise Hunter, Principal Technical Auditor

Hello and welcome back! This month I am going to address a risk element that has been garnering more attention lately, specifically ***Gaps in Program Execution***. This risk element focuses on the emerging risk created by processes and controls not adequately implemented, or consistently applied. The 2019 Compliance Monitoring and Enforcement Program Implementation Plan identified FAC-003-4, FAC-008-3 and PRC-005-6 as the standards with highest number of incidents where inconsistent or inadequate controls are believed to be contributing to increasing the risk posed by the standard. In preparation for this article, I researched how prevalent that risk exposure was.

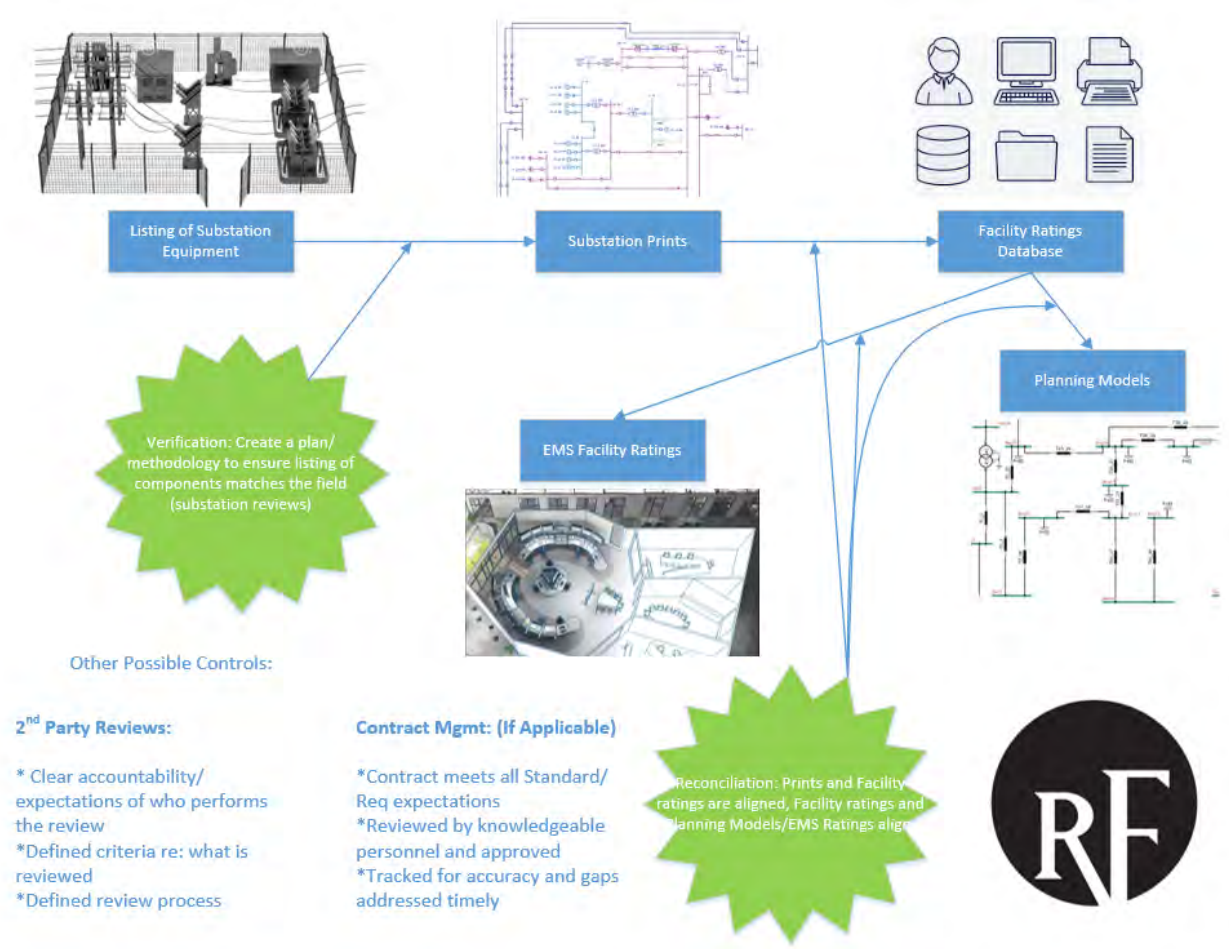
Over the course of the current version for those three standards, NERC has identified 24 Notice of Penalties across the ERO, with FAC-008-3 accounting for 19 of those violations. **Nineteen!** This warranted further research to identify what one control failure was the highest contributor to that figure. It turns out that it wasn't just one control, it was a number of controls that were failing. This increased the risk exposure, so I am going to veer from my previous method of focusing on one internal control, and I will speak to each control failure identified, and provide focused information on one.

Nine of the nineteen violations of FAC-008-3 were based on a failure of R6, " *Each Transmission Owner and Generator Owner shall have Facility Ratings for its solely and jointly owned Facilities that are consistent with the associated Facility Ratings methodology or documentation for determining its Facility Ratings*."

You might ask 'How is this possible? We have written a thorough methodology addressing all expected criteria, ensuring that we have properly identified the most limiting Element! What went wrong?' In answer to that question: you can write the most thorough methodology for any process, but without appropriate training, controls for the implementation process, and monitoring the performance of that methodology, the methodology will likely eventually fail.

So what controls were missing and why did they fail? Let's look at the details for a few of those events and see if we can answer that question. For each event, I will suggest a mitigating control that might have prevented the occurrence.

These five events on the following page represent the majority of the control failures reported. See the figure to the right for a visual representation, with possible additional controls:



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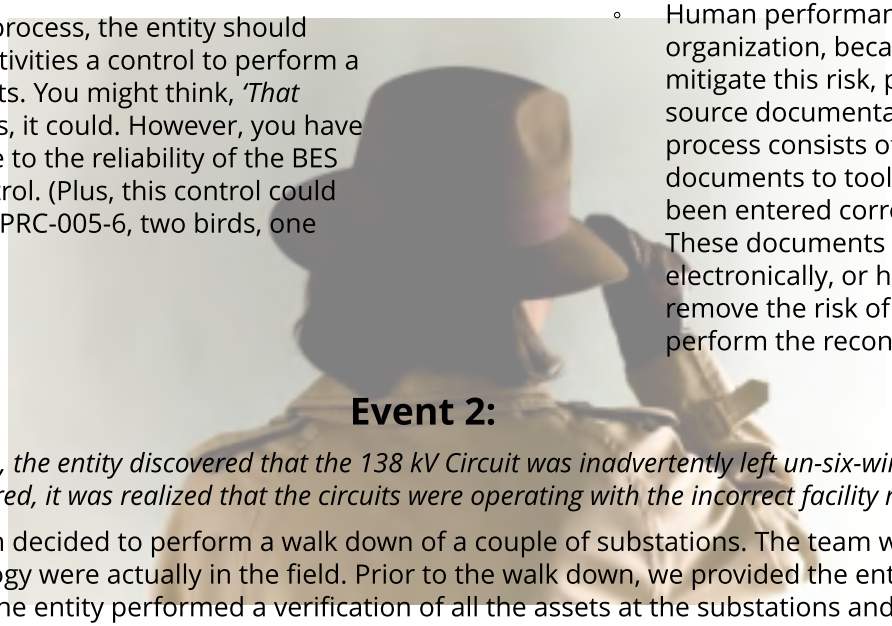
Event 1

Entity discovered while performing a gap assessment after taking over facility operations from a previous owner that the entity facility ratings did not include all the required components specified in FAC-008-3 R6.

This is a common occurrence. An entity grows their business through a merger or acquisition, and by doing so assumes the risk that the previous owner did not adequately mitigate due to inadequate assessments or an unsound methodology.

- Mitigating control for Event 1: Verification of asset listing. (Detective Control)
  - During the acquisition/merger process, the entity should include in their due diligence activities a control to perform a complete verification of all assets. You might think, *'That could be a huge undertaking!'*. Yes, it could. However, you have no idea what your risk exposure to the reliability of the BES is, without performing that control. (Plus, this control could help mitigate any risk posed by PRC-005-6, two birds, one stone!!)



Event 3

An entity used the Substation Conductor Ratings Determination Tool. The tool uses user-based assumptions and equations from various standards to calculate parameters for the equations and the ambient temperature ratings for substation conductor types. The entity then discovered inconsistencies with the tool and certain substation conductor ratings, and determined the issues arose from a data input error. The resulting review required a change in ratings for 3% of the entity's BES transmission facilities, to mitigate the violation.

- Mitigating Control for Event 3: Reconciliation of data input. (Detective Control)
  - Human performance is the largest risk posed by every organization, because human beings are fallible. In order to mitigate this risk, perform a reconciliation of input data to source documentation to ensure accuracy. The reconciliation process consists of simply 'ticking and tying' the source documents to tool documents, ensuring that all data has been entered correctly, then signing and dating the report. These documents can then be scanned and saved electronically, or hardcopies maintained. If possible, to remove the risk of cognitive bias, a separate individual should perform the reconciliation.

Event 2:

During a combined training/station review session, the entity discovered that the 138 kV Circuit was inadvertently left un-six-wired for the first span on both circuits near the substation. Once the incorrect design was discovered, it was realized that the circuits were operating with the incorrect facility ratings documented.

I was recently on an audit where the audit team decided to perform a walk down of a couple of substations. The team was reviewing the Facility Ratings to compare what Elements used in the methodology were actually in the field. Prior to the walk down, we provided the entity a listing of possible substations under review. During their preparation for the audit, the entity performed a verification of all the assets at the substations and identified a number of facility rating issues. The entity was fully transparent and informed the audit team of their finding.

- Mitigating control for Event 2: Verification of asset listing. (Detective Control)
  - Incorrect asset listings due to component replacements, setting changes, human error, etc. occur, placing the reliability of the BES at risk. As stated above, I am aware that this could be a huge undertaking. However, the risk of not performing this control could place any other controls established around asset performance and asset maintenance in a suspect position. If your baselines were inadequate or incorrect, all other controls would be working off incorrect information. Establishing a schedule to perform this verification, in a systematic manner, that doesn't place your entity under undue stress, would go a long way to ensuring your reliability to the BES.

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Event 4

Entity had a concern about meeting system restoration requirements for a nearby nuclear plant. To address this concern long term, the entity was in the process of installing and testing a new Black Start Resource to supply the nuclear plant with power. But, because the modifications and tests were occurring around the same time as another substation's units (Substation A) were set to retire, the entity decided they would temporarily keep the Substation A's peaking units in its System Restoration Plan as backup Black Start Resources in case the modifications or tests were not successful or completed on time.

This decision keep the Substation A peaking units as backup Black Start Resources was not communicated to all necessary individuals. As a result, the individuals responsible for setting the Facility Rating for the Substation A peaking units incorrectly believed Substation A units were retiring in April 2016 and thus did not set a Facility Rating by the July 1, 2016 deadline.

- Mitigating Control for Event 4: Change Management (Preventative Control)
  - The greatest value of change management is that it provides conceptual scaffolding for people, the process, and the organization implementing change. It's a framework used to support and understand the change and its effect on the organization and its people.[1] We will discuss this control in more detail below.

Event 5

Engineering discovered that bus equipment ratings from Engineering correspondence used to identify the ratings did not match the vendor drawings for Gas Turbines at two different units.

As a result the bus ratings were incorrect for those two units. When the drawings were updated, these bus ratings became the Most Limiting Series Element (MLSE).

- Mitigating Control for Event 5: 2nd Party Review (Detective)
  - The strength of a review is that it removes the risk of cognitive bias, and provides a knowledgeable, objective assessment of the data or process, increasing the opportunity to identify inaccuracies.

[1] Benefits of Change Management

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Next, I would like to discuss the design of a strong Change Management control. The strength of a good Change Management control lies in the ability to ensure that all changes are approved and documented, services are not unnecessarily disrupted, and resources are used efficiently. It's a systematic approach to managing all changes made.

Here are some steps that I would consider when designing a Change Management control:

1. Entity has established a plan to identify when changes to operations or operating conditions, or deviations from established baselines, could negatively affect operation and therefore change is needed.
2. The entity has established a change approval process where changes are requested in a formal process, requests are recorded and assessed based on their projected effect to operations.
3. The entity has a developed a change implementation program that details proper coordination of approved changes to all internal and external stakeholders, in order to remove or reduce any interruption to operations.
4. Changes to operations are monitored in order to ensure that they are producing the desired outcome or effect.
5. Entity documentation of changes, whether in response to events or in accordance with plans or approved changes, follow the trail of the change from conception to monitoring, and capture all necessary information.
6. Entity has defined an emergency change process. Things can happen that require changes be made immediately. The entity should define a process to ensure they circle back and address the previous steps, to ensure the emergency change addressed all established criteria.

A strong Change Management control is imperative to help reduce the issues around FAC-008-3 implementation. Effective change management could ultimately help to reduce your misoperations rate by reducing the opportunity of error during relay replacement and maintenance work. A Win Win!!

Finally, I would like to talk about the monitoring process, because this is an extremely important process needed to ensure the accuracy, consistency and success of any control. The best controls are susceptible to failure if no one is monitoring the control. You create strong control environments by embracing all components of the internal control program (culture, risk assessment, control activities, information & communication, and MONITORING), however far too often the controls fail because no one was monitoring them consistently to ensure that they were still working effectively and efficiently.

New staffing, technology updates or changing organizational policies or structure will dilute a control and increase risk. Therefore, control monitoring is just as important as the design of the control.

Monitoring of controls is a cyclical process. It starts with:

1. an understanding of the control by people knowledgeable of the desired outcome
2. monitoring and evaluation of the control is performed on a consistent basis
3. if deficiencies are identified then the change management control is initiated resulting in a reevaluation or update to the control
4. if no deficiencies are identified, documentation of the monitoring is maintained

We've talked about a number of control activities today: Verification of Assets, Reconciliations, Change Management and the importance of monitoring controls. I hope that I haven't overloaded you with information, and the idea of identifying and including internal controls within your daily activities is beginning to be a little more familiar.

Until next time, enjoy the summer and Get Control of Yourself!