



PROCESS EXCELLENCE
Identification, Isolation, and Restoration
Hands-on Exercise Rubric

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Process Excellence

Identification, Isolation, and Restoration: Hands-on Exercise Rubric

Purpose

This document is the scoring rubric used to evaluate each participant, during, and after the hands-on exercise for both human performance and technical knowledge regarding a relay identification, isolation, and restoration. This document identifies the expectations of quality around the task and defines the criteria for scoring each section.

Because the expectations are transparent, this scoring rubric allows instructors and participants alike to evaluate criteria, which can be complex and subjective. Moreover, this document provides a basis for self-evaluation, reflection, and peer review.

Scoring the Hand-on Exercise

To determine a participant's percentage score on this exercise, add the total number of **GREEN** boxes with checkmarks and divide by 28, then multiply by 100.

$$\frac{(\underline{\hspace{1cm}})}{28} \times 100 = \underline{\hspace{1cm}}\%$$

Final Score: _____

Participant Number: _____

Participant Name: _____

Instructor Comments:

Instructor Name: _____

Instructor Signature: _____ Date: _____

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Scoring Criteria

The exercise consists of **28** scoring opportunities and will be recorded using the table below. The table clearly identifies the criteria for each level of understanding.

Level of Understanding	Exemplary: Demonstrates a complete understanding by providing a thorough and accurate explanation.	Competent: Demonstrates an understanding by providing a sufficient explanation.	Needs Improvement: Demonstrates a partial understanding by providing some inconsistent or flawed explanation.	Unsatisfactory: Fails to demonstrate adequate understanding by providing incomplete or incorrect explanation.
	28-26	25-23	22-20	21-0
<i>Content</i>	Accurate and insightful information.	Sufficient information.	Adequate information with some inaccuracies.	Vague or incorrect information.
<i>Communication Skills</i>	Content is presented in a logical and coherent manner.	Content is presented in a well-organized manner.	Content is presented in a some-what organized manner.	Content is presented in an unorganized manner.
<i>Critical Thinking</i>	Identifies and thoroughly addresses key aspects of the question.	Identifies and addresses key aspects of the question.	Identifies and addresses some key aspects of the question.	Fails to identify and address key aspects of the question.

Identification, Isolation, and Restoration Exercise

- ❑ Understood the purpose of a relay isolation and restoration
 - ❑ Isolation is the act of isolating a relay or device from field equipment control circuits, voltages, currents, communications, or AC or DC power sources by means of isolation devices such as test switches, slide link terminal blocks, fuses, or mini circuit breakers. This allows the isolated equipment to be tested, modified, and maintained without taking field equipment out of service intentionally or accidentally.
- ❑ Drawings and documents
 - ❑ Discussed and documented Daily Pre-Job Briefing Form (17000.11A)
 - ❑ Identified the tasks for the day
 - ❑ Identified the hazards and risks from safety and system perspective
 - ❑ Identified the hazards and risks mitigation
 - ❑ Conversation was effective
 - ❑ Document was completed correctly
 - ❑ Discussed and documented High Risk Task Plan Form (17000.11C)
 - ❑ Identified the need to use the form
 - ❑ Identified the hazards and risks from safety and system perspective for each step
 - ❑ Identified the hazards and risks mitigation for each step

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- ❑ HASP
 - ❑ Reviewed and sign-off

- ❑ Discussed and documented 17000.02B – Site Risk Assessment Form
 - ❑ Overall project risks identified
 - ❑ Risk mitigation identified
 - ❑ Conversation was effective
 - ❑ Document was completed correctly
- ❑ Equipment identification, isolation, and restoration
 - ❑ Identify project equipment
 - ❑ Identified physical relay involved in scope of work
 - ❑ Identified physical isolation equipment involved in scope of work
 - ❑ Correct HP tools are applied
 - ❑ Applied HP tools are accurately placed to identify go and no-go zones
 - ❑ Perform isolation
 - ❑ Used isolation plan and required schematics to conduct the isolation
 - ❑ Performed isolation using two-person, 3-way communication
 - ❑ Utilized NATO phonetic alphabet
 - ❑ Initialed and dated the isolation verification form after each step of the isolation
 - ❑ Correctly addressed any isolation points that were not covered on the isolation plan
 - ❑ Perform restoration
 - ❑ Used isolation plan and required schematics to conduct the restoration
 - ❑ Performed restoration using two-person, 3-way communication
 - ❑ Utilized NATO phonetic alphabet
 - ❑ Correctly verified critical outputs were not closed prior to restoration using DC voltage checks
 - ❑ Initialed and dated the isolation verification form after each step of restoration

Topic	Question Stem	Answer	Distractor 1	Distractor 2	Distractor 3	Learning Objectives
Process Excellence	Which of the following is the FIRST document to be reviewed when starting a new project?	Scope of Work	Testing and Commissioning Plan	Health and Safety Plan	Commissioning Work Plan	Describe Site Commissioning documentation and locations
Process Excellence	Which of the following is NOT a TRC required document?	Safety Cheatsheet	Health and Safety Plan (HASP)	17000 Commissioning Procedures	Commissioning Work Plan	Describe Site Commissioning documentation and locations
Process Excellence	Please complete the following statement: Safety on each job site is the responsibility of	Everyone	The Safety Director	Contractors	The Lead Commissioning Engineer	Explain the Testing and Commissioning Process and Procedures
Process Excellence	When should the Health and Safety Plan (HASP) start to be prepared?	Before mobilizing to the project site	On the way to the project site	After getting to the project site	After getting familiar with the site on the first day	Describe Site Commissioning documentation and locations
Process Excellence	Which of the following does NOT need to be in the Health and Safety Plan (HASP)?	Isolation and restoration steps	Owner Specific incident/accident response information	Nearest Emergency facility addresses, phone numbers and maps (Fire, Police, Hospital, Express/Uberent Care)	Emergency Action Plan	Describe Site Commissioning documentation and locations
Process Excellence	Please complete the following statement: A _____ form is used to capture a potential hazard or incident that has NOT resulted in any personal injury. Unsafe working conditions, unsafe employee behaviors, improper use of equipment or use of malfunctioning equipment have the potential to cause work related injuries.	Safe Catch	Close Call	Incident	Near Miss	Describe Site Commissioning documentation and locations
Process Excellence	Which of the following is FALSE about the 17000.11B - Safe Catch Report Form and program?	The intention is to determine "who" is at fault	It aims to ensure a safer work environment and safer work practices	It is everyone's responsibility to report and/or correct these potential incidents immediately	It helps to reduce the frequency of incidents	Describe Site Commissioning documentation and locations
Process Excellence	Please complete the following statement: The _____ is responsible for being familiar with the design intent of each Protection & Controls circuit in order to thoroughly test them. Some systems may have subtle, but very important, aspects and some systems may be very complex.	Lead Commissioning Engineer	Apparatus Technician	Site Foreman	Substation Construction Department	Explain the Testing and Commissioning Process and Procedures
Process Excellence	The 17000.04 (A-MM) Equipment Data Sheets include sections for all information EXCEPT?	Customer signature/approval	Equipment nameplate	General information	Comments	Describe Site Commissioning documentation and locations
Process Excellence	Which statement is TRUE about Human Performance Tools?	They include barriers, identification tools, and isolation leads	They take the place of lockout tagout	They can be used if time permits	They increase the risks to personnel and equipment	Describe Human Performance Improvement models used in substations
Process Excellence	Please complete the following statement: Human Performance Tools shall be used _____ to reduce the risks and hazards to personnel and equipment, and to reduce the possibility of system mis-operation.	At all times	As time permits	Only on larger projects	Only when required by the customer	Describe Human Performance Improvement models used in substations
Process Excellence	The 17000.01 Commissioning Procedures document describes information on the successful testing and commissioning of electric power system projects EXCEPT?	Client-specific test procedures	TRC general requirements	TRC commissioning process, roles, and responsibilities	Additional documents and procedures (e.g., 17000)	Explain the Testing and Commissioning Process and Procedures
Process Excellence	The 17000.03 - Testing and Commissioning Guidelines document describes TRC's specific minimum requirements for Testing and Commissioning of all of the following EXCEPT?	Cable trench	Substation primary equipment	Control Circuits	Protective relays	Describe Site Commissioning documentation and locations
Process Excellence	Which of the following statements about the 17000.02D - Isolation Verification Form is FALSE?	They are developed only from equipment nameplate and equipment labels	They must have a space to initial and date each step of the isolation	They must be developed prior to the isolation of any protection and control circuit or relay	A second qualified person should verify them	Describe Site Commissioning documentation and locations
Process Excellence	Which of the following fields is NOT included on the 17000.02D - Isolation Verification Form?	Outage application	Brief description of circuit to be isolated	Points of isolation	Drawing reference numbers	Describe Site Commissioning documentation and locations
Process Excellence	Regarding completing the 17000.02D - Isolation Verification Form, it is acceptable to?	Provide a brief description of the circuit to be isolated	Disregard the form if you are confident in the circuit to be isolated	Not reference the drawing number	Provide multiple isolation points into one step	Describe Site Commissioning documentation and locations
Process Excellence	Site commissioning audits (using 17000.02E - Commissioning Audit Form) are performed as a means of quality control and are conducted:	At any time	Once a day	Once a week	Once a month	Describe Site Commissioning documentation and locations
Process Excellence	Safety audits (using 17000.02F - Safety Audits Form) are an inspection on all the following, EXCEPT?	Commissioning Plan	Personal Protective Equipment (PPE)	Daily Pre-Job Briefing (Tailboard)	Health and Safety Plan (HASP)	Describe Site Commissioning documentation and locations
Process Excellence	When should the Site Commissioning Binders be updated?	As often as is required, to ensure accuracy and clearly written information	At the beginning of each week	At the end of each week	At the end of the project	Explain the Testing and Commissioning Process and Procedures
Process Excellence	Commissioning Engineers should assume that all drawings issued from the client (are)?	Need validation and verification	Accurate	Up-to-date	Include a complete package	Explain the Testing and Commissioning Process and Procedures
Process Excellence	Complete the following statement: The Lead Commissioning Engineer does NOT _____ during the Off-Site Pre-Commissioning?	develop the 17000.02B - Site Risk Assessment Form	become familiar with the details of the project	Identify any potential issues	develop outages & energization plans	Describe the Off Site Pre-Commissioning Process
Process Excellence	What is conducted to bring the entire project team together to review the project scope and schedule?	Project kickoff meeting	Initialization meeting	Staff selection meeting	Mobilization meeting	Describe the Off Site Pre-Commissioning Process

Process Excellence	The purpose of a Testing and Commissioning Plan is to identify all of the following EXCEPT?	Daily Pre-Job Brief (Tailboard) details	Steps to successfully complete the testing and commissioning	Lead Commissioning Engineer roles and responsibilities	Mobilization and site documentation	Describe the Off Site Pre-Commissioning Process
Process Excellence	The Outage & Energization (O&E) plan shall include which of the following, EXCEPT?	Client switching orders	A review of the protection on the new and existing equipment	A review of any special recording equipment needed	An outline and timeline for the overall energization schedule	Describe the Off Site Pre-Commissioning Process
Process Excellence	Complete the following statement: Upon mobilization to the site, the Lead Commissioning Engineer must first prepare a	Daily Pre-Job Brief (Tailboard) and a Site Risk Assessment	Weekly Work Plan and a Site Risk Assessment	Daily Work Plan and Isolation Plan	Isolation Plan and Weekly Work Plan	Describe the Site Assessment and On Site Pre-Commissioning Process
Process Excellence	Complete the following statement: The Lead Commissioning Engineer is required to share the Site Risk Assessment with	All involved parties on site	The commissioning team	Only the Safety Auditor	The owner or their representative	Describe the Site Assessment and On Site Pre-Commissioning Process
Process Excellence	All the following are characteristics of the 17000.02B - Site Risk Assessment form EXCEPT?	Once approved, is not to be updated	Onsite additional risks associated with a project and mitigation plan	To be completed at initial mobilization and prior to any work beginning	Updated whenever a major change in site conditions	Describe Site Commissioning documentation and locations
Process Excellence	Complete the following statement: The Lead Commissioning Engineer will re-evaluate the site risk assessment	Whenever a major site status change occurs	At the beginning of each week	At the beginning of each day	Before auditing is performed	Describe the Site Assessment and On Site Pre-Commissioning Process
Process Excellence	Reasons to use three-way communication include all of the following EXCEPT?	The ability to work on critical tasks without a second person	It is an important defense in the prevention of errors	To consistently and effectively communicate complex and technical information	To create a mutual understanding between two or more people	Describe Human Performance Improvement models used in substations
Process Excellence	Which of the following is NOT a tool that aids in coordinating and scheduling activities related to Testing and Commissioning?	17000.04 (A-FF) Equipment Data Sheets	Testing and Commissioning Plan	Outage & Energization Plan	Responsibility Matrix	Explain the Testing and Commissioning Process and Procedures
Process Excellence	When creating a Site Commissioning Binder, if a section is determined to not be applicable for the given project the Commissioning Engineer shall:	Insert a sheet stating this section is not applicable for the project	Leave the section blank	Use section for storage	Use section as an appendix	Describe Site Commissioning documentation and locations
Process Excellence	A Testing and Commissioning project that is projected to take a total of two weeks to complete must include which of the following in its Site Commissioning Binder?	All 18 of the sections/tabs with the appropriate documentation	The sections/tabs where the appropriate documentation is signed/dated	Only the Scope of Work, Commissioning Plan/Responsibility Matrix, Site Risk Assessment	Only the Scope of Work, Risk Assessment, Health and Safety Plan (HASP), and Daily Pre-Job Briefings	Explain the Testing and Commissioning Process and Procedures
Process Excellence	The 17000.10 - Numerical Relay Requirements and Procedures document outlines the process and procedures for connection settings used for:	Microprocessor relay communication connection procedures	High-voltage connection procedures	Point to point drawing procedures	AC circuit testing procedures	Describe Site Commissioning documentation and locations
Process Excellence	The 17000.11C - High Risk Task Plan is used for:	Additional daily task planning and hazard analysis for high risk tasks	Development of outage plans	New equipment energization walkdowns	Weekly task hazard analysis	Describe Site Commissioning documentation and locations
Process Excellence	The 17000.11A - Daily Pre-Job Briefing (Tailboard) shall be prepared and discussed with all BUT?	The off-site Design Engineer	The TRC testing team	The TRC commissioning team	Any non-TRC site personnel	Describe the On Site Commissioning Process
Process Excellence	When should a Lead Commissioning Engineer conduct an additional Daily Pre-Job Briefing (Tailboard) meeting?	Anytime the work scope or work zone changes or any new safety concerns	Only when project start and stop times are impacted	When three or more people show up to the site	Only after being informed that a TRC safety audit is to be conducted	Describe the On Site Commissioning Process
Process Excellence	What is the first thing the Lead Commissioning Engineer must review with new personnel arriving on site?	The Daily Pre-Job Briefing (Tailboard)	Equipment Data Sheets	Safety Audit Form	Test Certification Sheets	Describe the On Site Commissioning Process
Process Excellence	The Lead Commissioning Engineer shall perform all of the following EXCEPT?	Commission the drawing and NOT the circuit	Commission the circuit and NOT the drawing	Understand the design intent of each circuit and system, clearly identifying devices to be removed and/or tested	Ensure all applicable tests are performed on every piece of equipment or system	Explain the Testing and Commissioning Process and Procedures
Process Excellence	What is 17000.02D - Isolation Verification Form NOT used to identify?	Risk identification and hazard mitigation	Isolation of task specific DC circuits	Isolation of task specific AC circuits	Isolation of task specific relays	Describe Site Commissioning documentation and locations
Process Excellence	To validate the "TRC Working Copy," the Lead Commissioning Engineer should look for?	Red stamp to identify a single master set of drawings and shall remain on site at the substation at all time. This is the only set used for commissioning.	Green stamp to identify a single master set of drawings and shall always remain on site at the substation.	Green stamp to identify two sets of master drawings with one set remaining on site and the other with the Design Engineer.	Red stamp to identify two sets of master drawings with one set remaining on site and the other with the Design Engineer.	Explain the Testing and Commissioning Process and Procedures