System Operator Certification Program Manual

Version 4.2

Approved by
NERC Board of Trustees
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Table of Contents

Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities, is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is made up of six Regional Entity boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners (TO)/Operators (TOP) participate in another.
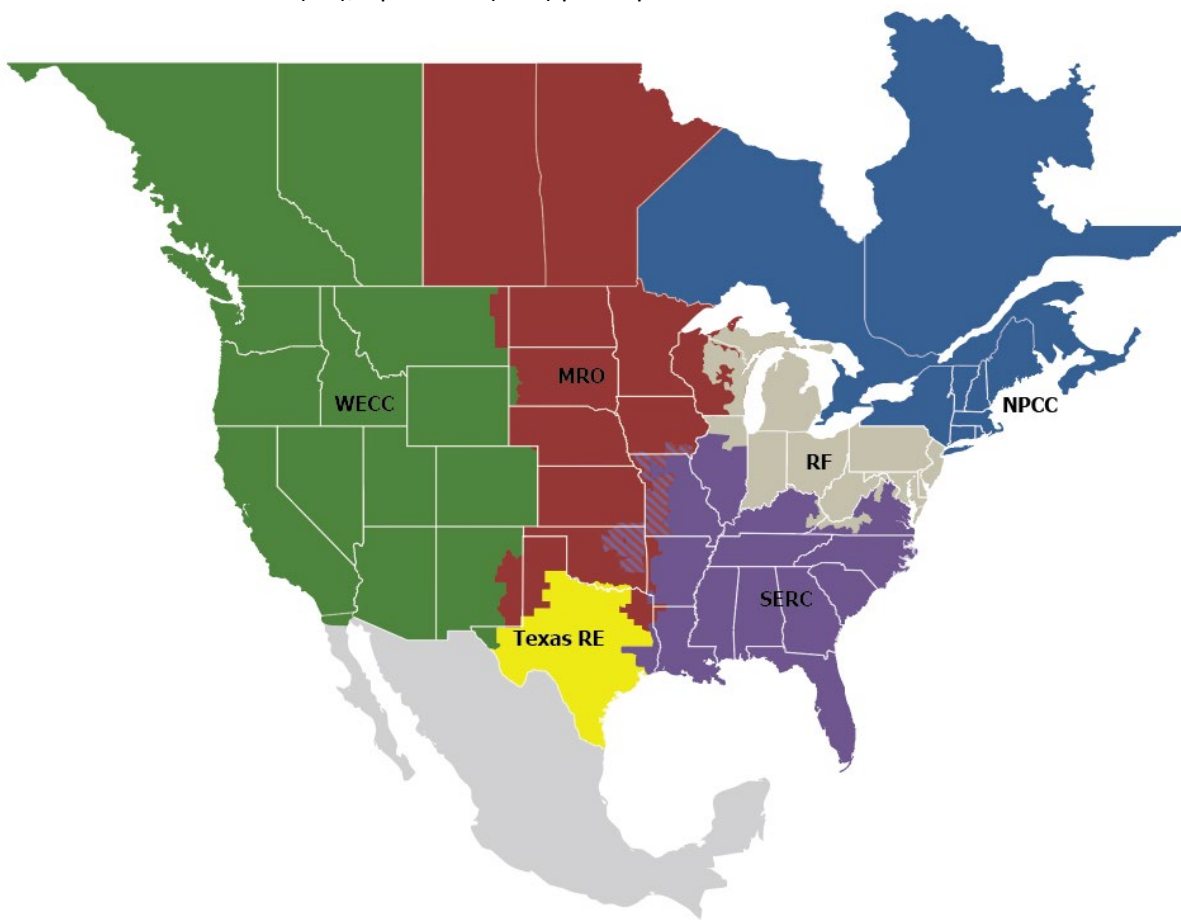
MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	WECC

Introduction

The System Operator Certification Program promotes skilled and qualified system operators to ensure the reliability of the Bulk Electric System (BES).

NERC does not and shall not discriminate on the basis of age, gender, race, religion, national origin, disability, sexual orientation, or marital status in its implementation of the System Operator Certification Program.

The System Operator Certification Program provides the framework for operators to obtain initial certification in one of four NERC credentials: Reliability Coordinator Operator; Balancing, Interchange, and Transmission Operator; Transmission Operator; and Balancing and Interchange Operator. A system operator credential is a personal credential that NERC issues to a person for successfully passing a NERC System Operator Certification Exam. Each credential focuses on a specific functional area of system operations. Operators maintain each credential by accumulating a specified number of continuing education hours (CEH) within a specified period of time.

The NERC Credential Maintenance Program, as stated in the NERC Rules of Procedure,[1] provides a framework for the development and tracking of high-quality learning activities that qualify for CEHs.

The Credential Maintenance Working Group (CMWG) reports to the Personnel Certification Governance Committee (PCGC) and is responsible for overseeing the development and implementation of Credential Maintenance Program requirements under the general guidelines set by the PCGC.

The CMWG shall develop and update, as necessary, the *Credential Maintenance Program Administration Manual;*[2] this manual describes the following:

- Requirements for approving credential maintenance providers and structured learning activities

- Requirements for auditing credential maintenance providers and structured learning activities

- A multilayered review process for disputed application reviews, interpretations of guidelines and Reliability Standards, probation or suspension of NERC-approved provider status, and CEH disputes

- Requirements on fees for credential maintenance providers and structured learning activities

The NERC PCGC is the governing body that establishes policies, sets fees, monitors the performance of the System Operator Certification Program, and ensures that the program is financially independent. NERC is the program administrator and maintains databases, records, applications, and contracts with vendors. NERC also collects fees, responds to inquiries, and provides reports on related system operator certification activities.

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[1] https://www.nerc.com/AboutNERC/Pages/Rules-of-Procedure.aspx
[2] https://www.nerc.com/pa/Train/SysOpCert/Pages/SOOneStopShop.aspx

Chapter 1: Certification Examinations

Overview

Through the System Operator Certification Program, NERC awards certification credentials to individuals who demonstrate that they have attained sufficient knowledge relating to NERC Reliability Standards as well as the basic principles of BPS operations by passing one of four examinations. NERC issues a certificate to the candidate who successfully completes an examination, and it remains valid for three years.

Members of the Exam Working Group (EWG) represent each of the areas tested in the examinations. The direct involvement of system operators, supervisors, and trainers in the examination development process is a primary requirement for NERC system operator certification examinations. The EWG develops the examinations under the guidance of a psychometric consultant. The EWG bases the examinations on content outlines developed through a job analysis. The EWG places each question in a "pilot" (not scored) position on the examination before using it in a "scored" position. Only questions that meet acceptable performance criteria can be placed in a scored position on an exam. The EWG continually tracks the performance of every question used in a scored position.

Examinations

There are four examinations:

- Reliability Coordinator Operator

- Balancing, Interchange, and Transmission Operator

- Transmission Operator

- Balancing and Interchange Operator

These computer-based exams consist of questions with multiple-choice answers. The content outlines can be accessed from the System Operator Certification and Credential Maintenance Program.[3] The PCGC approves the passing score for each new published exam, and the score can be found on the One-Stop Shop (System Operators Certification and Credential Maintenance Program)[4] web page with exam resources.

The number of correct responses required to pass (cut score) is set by a panel of practitioners using a rigorous standard setting methodology. This methodology requires subject matter experts to establish a definition of minimum acceptable competence for each examination and conduct an evaluation of each examination question in order to set the minimum level of performance necessary on each examination to demonstrate competence (**Table 1.1**).

Table 1.1: System Operator Examinations				
Examination Title	**Designation**	**Total Questions**	**Scored Questions**	**Cut Score***
Reliability Coordinator Operator	RC	140	120	92
Balancing, Interchange, and Transmission Operator	BT	140	120	92
Transmission Operator	TO	120	100	76

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[3] http://www.nerc.com/pa/Train/SysOpCert/Pages/default.aspx
[4] https://www.nerc.com/pa/Train/SysOpCert/Pages/SOOneStopShop.aspx

Table 1.1: System Operator Examinations				
Examination Title	**Designation**	**Total Questions**	**Scored Questions**	**Cut Score***
Balancing and Interchange Operator	BI	120	100	76

*Effective June 1, 2020

Each candidate's examination is developed to be equal in difficulty level to other candidates' examinations to ensure that a fair and consistent standard is applied to each candidate. To this end, each examination consists of scored examination questions that have been administered to candidates and have acceptable statistical characteristics.

Examination Process

Examination Application Process
Candidates must create an account in the System Operator Certification and Continuing Education Database[5] (SOCCED) to register and pay for an exam. After the candidate has paid for the exam, SOCCED sends (via a secure channel) the candidate exam eligibility information to the exam delivery vendor, Pearson VUE.

The candidate exam eligibility information includes full name, address, phone number, email address, exam type, exam eligibility start and end dates.

Once paid for, the exam application is valid for 365 days after the issuance date and can only be used once. If a candidate fails to schedule and sit for the exam within the 365-day eligibility period, the candidate shall forfeit the exam fee to NERC.

Scheduling an Examination Appointment
After candidates have selected and paid for the exam in SOCCED, a link to schedule with Pearson VUE will appear in their SOCCED account. The link will take candidates to Pearson VUE to schedule the exam.

Once candidates schedule the exam, Pearson VUE will send the exam appointment date and time to the candidates account in SOCCED. Candidates will receive an Authorization To Test (ATT) email from Pearson VUE with exam appointment instructions. Candidates should schedule no less than 24 hours in advance of the date/time they want to test. No same day scheduling is allowed.

Note: When candidates schedule an exam appointment, Pearson VUE will issue the candidate an Order Confirmation email with details of the appointment date/time/location along with instructions of what to bring to the test center on the exam date. Candidates should retain this email if there is a conflict with the test center appointment. FAQs and the candidate information are on the Pearson VUE website[6].

Canceling and Rescheduling Examination Appointments
Candidates can reschedule or cancel examination appointments without forfeiting the examination fee if the rescheduling or cancellation is completed 48 hours prior to the scheduled appointment.

Candidates can reschedule or cancel the exam appointment via the Pearson VUE link in their SOCCED account or by calling the Pearson VUE Contact Center at Toll free number: 1-888-736-0563 or Toll number: 1-425-464-8871.

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[5] https://nerc-socced.useclarus.com/
[6] Test-taker home - Pearson VUE

A voice mail message or chat is not an acceptable form of cancellation. Candidates will receive an email confirmation of a scheduled, rescheduled or cancelled appointment shortly after successfully submitting the request.

Examination Type Change Request

Candidates can change the exam type they previously registered for in SOCCED within the existing exam eligibility period. Once candidates change the exam type, SOCCED will send an exam cancellation to Pearson VUE.

When Pearson VUE receives the new exam type from SOCCED, they will send the candidate an Authorization To Test (ATT) email with updated exam information. After candidates receive the ATT from Pearson VUE, they can schedule an appointment for the new exam type using the Pearson Vue scheduling link in SOCCED.

Withdrawal from Examination Process

The eligibility period lasts for 365 days after the date the candidate pays for the exam. If a candidate wishes to withdraw from the process within the 365 days period for any reason, the candidate must request a withdrawal by close of business one day prior to the last eligibility day by submitting a request via the SOCCED Help Center. Candidates who submit the request within the time period will be reimbursed for the fees submitted to NERC except the withdrawal fee. The candidate will forfeit all submitted fees if the candidate fails to properly withdraw.

Note: If a candidate has already scheduled an appointment with Pearson VUE to take the exam, the candidate must cancel that appointment with Pearson VUE or forfeit the exam fee.

Special Accommodations Requests

Requests submitted for special accommodations covered by a recognized disability will be reviewed by the Personnel Certification Governance Committee (PCGC) and NERC Staff. Requests must be supported by the Special Accommodation Request Form[7] and a letter from a recognized health care provider, signed by a health professional. The PCGC and NERC will review each request and provide appropriate Special Accommodations, if warranted. The decision will be included in the email notice of eligibility approval/denial sent to the applicant.

When making requests for Special Accommodations, applicants must notify the NERC Manager of Personnel Certification and Credential Maintenance by submitting a ticket to the SOCCED Help Center. The candidate should submit the request and wait for the decision prior to scheduling the exam.

Note: It may take the exam vendor 7 – 10 business days to accommodate an approved request. If the candidate already has their exam schedule, they will need to take this into consideration. Special accommodations may impact the availability of testing locations.

Taking the Exam

Candidates should arrive and be inside the testing center at least 30 minutes prior to the examination start time for the Administration and Review of Candidate Identification and should allocate at least a total of 3.25 hours to accommodate the testing process (**Table 1.2**).

Non-Disclosure Agreement

Prior to the start of your exam, you must read and accept the terms of the NERC Non-Disclosure Agreement onscreen before continuing to the exam. If you select Decline, the system will prompt you to verify that you want to accept Decline. If you select Decline a second time, your exam will end and show as Refused and you will not be able to continue to the exam. Your exam fee will be forfeited. This attempt in your records will show as Refused. If you want

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[7]

to take another exam you will need to register/pay for the exam in SOCCED. You will need to pay for a new exam with NERC.

Candidates can review the terms of the Non-Disclosure Agreement (NDA) on the NERC page on Pearson VUE's website prior to taking the exam.

Identification

Candidates must show two current valid forms of identification to be admitted into the examination: one primary form of identification and either another primary or a secondary form of identification:

- Primary identification is a government-issued form of identification and must have both your picture and your signature on it. Examples of primary identification are a driver's license, a government issued identification card, a passport, a temporary visa, or a military ID.

- Secondary identification must have a name and either your picture or your signature or both. Acceptable forms of secondary IDs are an employment ID, credit card, or debit card.

If there is a discrepancy between the name on the schedule and the name on the ID, the Test Administrator will ask the candidate to explain the reason for the discrepancy.

The Pearson VUE testing centers will not accept altered, expired, or damaged identifications.

Table 1.2: Examination Time Allocation	
Examination Stages	**Time Allocation**
Computer-Based Tutorial	15 minutes
Non-Disclosure Agreement	Mandatory and Untimed
Examination	3 hours
Total Time to be Allocated	**3.25 hours**

Testing Center Regulations

- Depending on the established criteria at the testing center, candidates who arrive late (15 minutes past the appointment time) may not be allowed to sit for the examination. Late arrivals that are not permitted to take the examination will be considered no-shows and must reapply and pay the full test fee to take the examination.

- Candidates cannot bring reference materials, watches, calculators, cell phones, or recording equipment into the examination. Some testing centers may not have lockers to accommodate personal items. Do not bring personal items, besides your appropriate ID, into the test center.

- You will receive a noteboard and marker to use during the exam. If you require a clean noteboard, the TA will replace the full noteboard with a clean one. Only one noteboard is allowed at the workstation during testing. (Online basic and scientific calculators are provided).

- Visitors are not permitted during the examination.

- Testing center staff can only answer questions about testing procedures; they cannot respond to inquiries regarding the examination's content.

- During the examination, candidates may use the restrooms; however, the examination clock will continue running during that time.

- Candidates may not leave the testing center until they have finished the exam.

- Any candidate giving assistance, receiving assistance, or making a disturbance will be required to turn in their examination materials, exit the examination room, and leave the testing center. The Disciplinary Action Procedure will be initiated upon notification to NERC that the incident occurred.

- Any instances of cheating or attempts to impersonate another candidate will be dealt with through the Disciplinary Action Procedure.

- If the testing center regulations differ from what is noted above, the testing center regulations should be followed.

Note: All no-shows will have to reapply and pay the full test fee to take the examination in SOCCED.

Exam Results
A pass/fail score report will be provided at the end of the exam and Pearson VUE will email a link to the score report after the candidate has completed the exam.

Candidates who pass the examination will receive the appropriate NERC-certified system operator certificate signed by the NERC CEO. The date on the certificate will be the date the candidate passed the examination.

Confidentiality of Exam Questions
The exam questions are the sole property of NERC and are confidential. Candidates are prohibited from downloading, taking screens shot of, or otherwise copying the exam questions in any format. Distributing, transferring, selling or otherwise sharing or publicly posting exam questions is strictly prohibited. Candidates that engage in such activity will have their credentials revoked and may be subject to other consequences as the law permits.

Time between Examinations
Candidates who fail an exam must wait 42 calendar days from the date of the failed examination to sit for any of the four NERC credential exams. Candidates who pass one of the NERC system operator certification examinations may not take that exam again unless their credential has expired. SOCCED automatically sets a credential to expire four years from the exam date if the credential maintenance requirements are not met.

Confirmation of Credential to Third Parties
NERC will confirm to an employer that an individual holds a valid NERC system operator certificate and will release the certificate number and issuance date in response to a written request.

NERC will release the certificate numbers and issuance dates for individuals holding a current NERC system operator certificate to the regional compliance staff or designated agents of registered entities in which an individual's employer operates in response to a written request.

NERC will confirm to an employment search firm or a potential employer whether an individual holds a valid NERC system operator certificate, including releasing the certificate number and the issuance date, if the search firm or potential employer has a release from the individual.

Chapter 2: Credential Maintenance

Overview

The System Operator Certification Program includes a requirement to maintain certification by obtaining CEHs. Successfully passing an examination earns candidates a credential and a certificate that is valid for three years. NERC requires certified system operators to accumulate CEHs through the NERC Credential Maintenance Program in recognized operator training topics, as listed in **Appendix A** for credential maintenance. To maintain a valid credential, candidates must accumulate the proper number and type of CEHs from NERC-approved learning activities within a three-year period. The system operator must meet the requirements and pay for their renewal in SOCCED. Upon transcript review and approval, NERC will issue a new certificate with the new expiration date.

Program Requirement Summary

1. System operators seeking to obtain a credential must pass an examination.

2. NERC will issue a certificate that is valid for three years to successful candidates.

3. To maintain a valid certification, a system operator must earn CEHs within the three-year period preceding the expiration date of their certificate as specified by their credential in **Table 2.1** and adhering to the timeline in **Figure 2.1**. The CEHs must include the following:

    a. A minimum of 30 CEHs that focus on content and/or implementation of NERC Reliability Standards.

        i. NERC Standard CEHs can be awarded for training on the contents or implementation of a NERC Reliability Standard, where the corresponding NERC Reliability Standard meets each of the following requirements:

        (1) Is subject to current or future enforcement.

        (2) Relates to one or more specific recognized operating training topics as they pertain to or support the BES reliability related responsibilities of the system operator.

        (3) Lists an RC, BA, and/or TOP functional entity in the applicability section of the standard or contains requirements that directly impact RC, BA, and/or TOP System Operator functions.

        (4) Is not exclusively related to personnel training and/or qualification requirements.

    b. A minimum of 30 CEHs that utilize simulations (i.e., tabletop exercises, operator training simulators, emergency drills or practice of emergency procedures, restoration, Blackstart, or other reliability-based scenarios).

Note: Reference the *Credential Maintenance Program Administrative Manual*[8] for additional information.

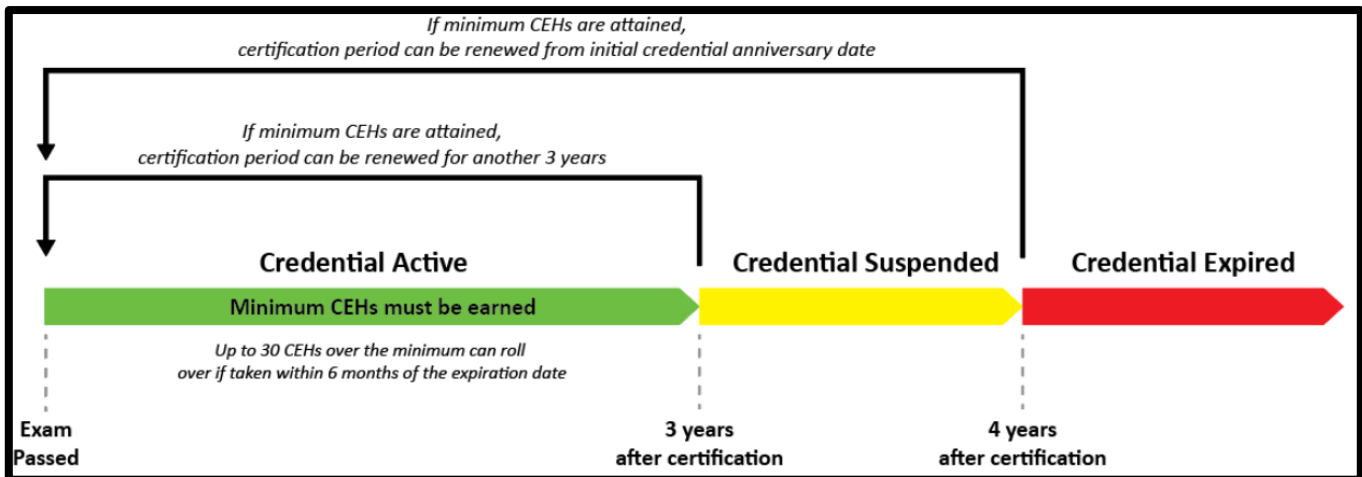| Table 2.1: Credential Maintenance Requirements				
Certification	**Designation**	**Total CEH Requirement**	**NERC Standard CEH Requirement**	**Simulation CEH Requirement**
Reliability Coordinator Operator	RA, RC	200	30	30
Balancing, Interchange, and Transmission	BT	160	30	30
Transmission Operator	TO	140	30	30
Balancing and Interchange	BI	140	30	30

Figure 2.1: NERC Credential Maintenance Process Flow

1. System operators satisfying the credential maintenance requirements must submit a renewal request for their credential and pay the renewal fees through the SOCCED.

2. The NERC system operator credential can be maintained only by earning the appropriate number and type of CEHs.

3. Certified system operators that do not accumulate enough CEHs to maintain their current credential prior to the certificate expiration date will have their credential suspended for a maximum of one year.

4. If the appropriate number of CEHs have not been obtained at the end of the suspension period, the credential will expire**.**

5. Certified system operators can accumulate the proper number and type of CEHs during the suspension period and have their credential reinstated with the original expiration date (three years after the previous expiration date).

Note: See **Chapter 7: Glossary**.

> CEHs can concurrently count for the total number required, the NERC Reliability Standards required, and the simulations but will only be counted once for the total CEHs requirement.
>
> For example: A three-hour learning activity that includes one hour of instruction and a two-hour simulation on the implementation of NERC Reliability Standards will be counted as three hours toward the total requirement, two hours toward the "standards" requirement, and two hours toward the "simulation".

6. System operators with expired credentials will have to pass an examination to become recertified.

Deficits of CEHs for Credential Holders

A system operator who does not accumulate the required CEHs within the three-year period will have their credential suspended. The system operator with a suspended certificate may not perform any task that requires an operator to be NERC certified. The system operator with a suspended credential will have up to 12 months to acquire the necessary CEHs. The original anniversary date (three years after the previous expiration date) does not change. The

system operator will still need to accumulate the required number of CEHs prior to the next expiration date. NERC will maintain a record of the suspension.

For example:

A system operator whose credential expires July 31, 2024, and who does not accumulate the required number of hours prior to that date, will have their credential suspended on July 31, 2024, 23:59.

If the system operator accumulates and submits the required number of hours on March 1, 2025, the credential will be reinstated and will be valid until July 31, 2027, which is three-years from the original expiration date of July 31, 2024.

The system operator will then have to accumulate the required number of hours prior to July 31, 2027, 23:59 or the credential will be suspended again.

CEHs previously used for credential maintenance cannot be reused.

SOCCED maintains the record of expiration in the Eastern Time Zone.

If the system operator does not accumulate the required number of CEHs at the end of a 12-month suspension period, the credential will expire, and the system operator will forfeit all CEHs earned. After a credential expires, the system operator must pass an examination to become recertified.

Rollover Hours

For all credentials, some CEHs may be carried over to the next certification period. Up to 30 CEHs accumulated in the six months prior to the certificate expiration date that are not used for credential maintenance or change of credential type may be carried over. Categorization of CEHs in the "standards" category or the "simulation" category will not be carried over into the next period. To satisfy the CEH requirement, CEHs will be used starting with the first learning activity that occurred, according to the calendar, then sequentially by the date of the learning activities. See **Figure 2.2** for an example of rollover hours.

For Reliability Coordinators, 200 CEHs Are Required for Each 3-Year Period

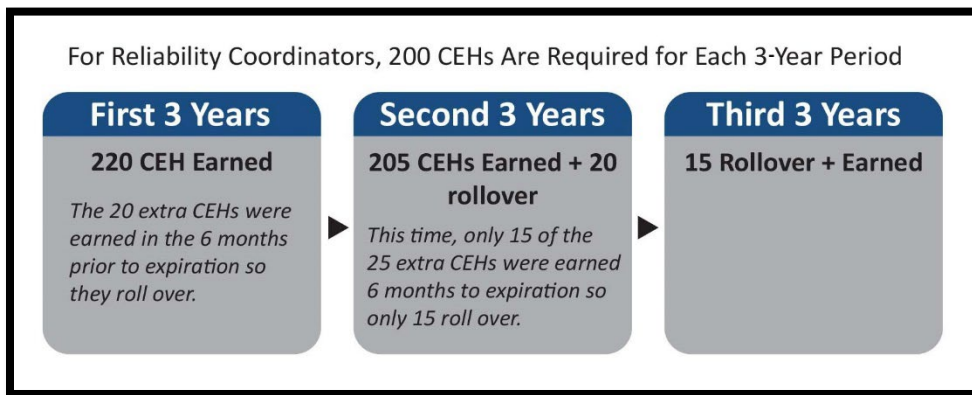| **First 3 Years**	**Second 3 Years**	**Third 3 Years**
220 CEH Earned	**205 CEHs Earned + 20 rollover**	**15 Rollover + Earned**
The 20 extra CEHs were earned in the 6 months prior to expiration so they roll over.	*This time, only 15 of the 25 extra CEHs were earned 6 months to expiration so only 15 roll over.*	

Figure 2.2: Certification Periods for Reliability Coordinator Credential (200 CEHs Required)

NERC Continuing Education Providers

NERC continuing education (CE) providers report the CEHs earned by each certified system operator to NERC electronically through the SOCCED. Providers are also required to provide the certified system operator with proof of having earned the CEHs.

System Operator

System operators can track their status toward maintaining their credential through the NERC SOCCED. Certified system operators should review their transcripts at least 90 days up to 6 months before their certificate expiration date to allow sufficient time to acquire CEHs should there be a conflict. If a conflict occurs, the certified system operator shall submit proof of having acquired the necessary CEHs from the Credential Maintenance Program's approved learning activities to the NERC manager of personnel certification and credential maintenance. The system operator must submit at least 30 days before the certificate expiration date to allow NERC staff time to process and resolve discrepancies and prevent the credential from being suspended. NERC will reinstate suspended credentials once proof of completion is verified.

System operators who meet the CEH requirements must pay for their renewal through SOCCED. The system operator may print a new certificate from SOCCED. The new certificate will have an expiration date that is three years from the previous expiration date. Renewal requests should be submitted no more than six months prior to expiration date.

Changing Certification Levels

A certified system operator who wants to change to a different credential that requires fewer CEHs may do so when they meet the proper number and type of hours for the new credential. A certified system operator can change their credential type by indicating the desire to do so in SOCCED when requested to renew.

See the following to change a credential:

- **Reliability Coordinator Operator (RC) to any other NERC credential**: a system operator who has obtained the proper number and type of hours for the new credential may renew to any NERC system operator credential.

- **Balancing, Interchange, and Transmission Operator (BT) to Transmission Operator (TO) or Balancing and Interchange Operator (BI)**: a system operator will have the option to renew to a TO or BI credential when the proper number and type of hours for the new credential have been obtained.

- **Balancing, Interchange, and Transmission Operator (BT) to Reliability Coordinator Operator (RC)**: a system operator must pass the examination for the Reliability Operator credential.

- **Balancing and Interchange Operator (BI) to any other NERC credential**: a system operator must pass the examination for that credential.

- **Transmission Operator (TO) to any other NERC credential**: a system operator must pass the examination for that credential.

Chapter 3: Hardship Clause (NERC Rules of Procedure)

Hardship is when unforeseen events and extenuating circumstances occur that place excessive burden on a system operator to earn or maintain a credential. To initiate the hardship clause process, the system operator must submit complete the Hardship Request Form[9] located on the One-Stop Shop (System Operators Certification and Credential Maintenance Program)[10] page.

The completed Hardship Request Form should be submitted via the SOCCED Help Center[11] Attention: Manager Personnel Certification and Credential Maintenance.

Following the PCGC's process, the Personnel Certification and Credential Maintenance manager will provide the hardship request to the PCGC's Hardship and Dispute Resolution Task Force (HDRTF) for review. The HDRTF makes the determination on approval or rejection of the request.

The PCGC retains the right to invoke the hardship clause and deviate from the program rules, as it deems appropriate to address such events or circumstances. Examples of extenuating circumstances include (but are not limited to) military service or an illness/disability of the system operator or within the system operator's immediate family that results in an extended period of time away from work.

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[9] https://www.nerc.com/pa/Train/SysOpCert/System%20Operator%20Certification%20DL/SOC_Hardship_Request_Form.pdf
[10] https://www.nerc.com/pa/Train/SysOpCert/Pages/SOOneStopShop.aspx
[11] SOCCED HELP CENTER (zendesk.com)

Chapter 4: Program Rules

Overview

NERC will recognize CEHs for credential maintenance only from operator training topics and learning activities listed in **Appendix A** and if providers have complied with the Credential Maintenance Program[12] rules. See the One-Stop Shop (System Operators Certification and Credential Maintenance Program)[13] for the *Credential Maintenance Program Administrative Manual* and other references.

Learning Activities

- **Training Frequency**

  There is education value in time-spaced learning and learning through repetition especially for developing long term memory (Smolen, et al., 2016).[14] As such, NERC allows certified system operators (including students, instructors, facilitators, and/or course designers/developers) to receive CEHs for completing the same learning activity and associated assessment(s) more than once. Repeated exposure to the same learning content, particularly in short succession, without allowing time for the application of the material, may result in rote learning and limit the effectiveness of the repeated exposure.

  The intent of the credential maintenance requirements is to ensure credential holders receive continuing training on a diverse range of topics that pertain to or support the BES reliability responsibilities of the system operator. The expectation is that a credential holder has a transcript representing a variety of courses to qualify for renewal. NERC reserves the right to review operator transcripts and address instances of misuse of this allowance.

- **Proof of Course Completion**

  A certified system operator is responsible for retaining appropriate documentation for proof of credential maintenance. Documentation includes the following:

  - The learning activity's title and identification number

  - The date(s) of the learning activity

  - The number and type of CEHs

  - The system operator's NERC certificate number

Training providers shall retain comparable documentation. Electronic forms of documentation are acceptable.

Learning Activity Status Changes

NERC will grant CEHs for a course or learning activity approved for credential maintenance. If a system operator attends an approved learning activity that is later revoked or expired, NERC will still recognize CEHs from that activity while it was approved.

Disputes between Certified System Operators and Providers

If there is a dispute between a provider and a certified system operator, the parties must resolve the dispute without involvement from NERC. Additionally, it is the obligation of certified system operators to periodically review their

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[12] https://www.nerc.com/pa/Train/SysOpCert/Pages/default.aspx

[13] https://www.nerc.com/pa/Train/SysOpCert/Pages/SOOneStopShop.aspx

[14] Smolen P, Zhang Y, Byrne JH. The right time to learn: mechanisms and optimization of spaced learning. Nat Rev Neurosci. 2016 Feb;17(2):77-88. doi: 10.1038/nrn.2015.18. PMID: 26806627; PMCID: PMC5126970.

CEH records in the NERC SOCCED and maintain their own training records to provide proof of achieving CEH requirements.

Fees
NERC uses fees for the ongoing expense to develop and maintain the certification program. The fees also cover the expense of the management and administrative costs associated with the examination process and credential maintenance. The PCGC periodically reviews and adjusts these fees. NERC posts these fees on the One-Stop Shop (System Operators Certification and Credential Maintenance Program)[15] page.

Legal Name Changes
If a system operator changes their legal name, the system operator must submit a written request containing an explanation of the circumstance and copies of the legal documentation of the name change to the following:

Submit a request[16] via the SOCCED Help Center

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[15] https://www.nerc.com/pa/Train/SysOpCert/Pages/SOOneStopShop.aspx
[16] https://soccedsupport.zendesk.com/hc/en-us/requests/new

Chapter 5: Dispute Resolution (NERC Rules of Procedure)

Overview

Any dispute arising under the NERC agreement that established the NERC System Operator Certification Program or from the establishment of any NERC rules, policies, or procedures that deal with any segment of the certification process or as a result of disciplinary action shall be subject to the NERC System Operator Certification Dispute Resolution Process. The Dispute Resolution Process is for the use of individuals who hold a NERC system operator certification or individuals wishing to be certified to dispute the validity of the examination, the content of the test, the content outlines, or the registration process.

Dispute Resolution Process

1. **NERC System Operator Certification Program Staff**

   The first step in the process is for the person with a dispute to contact the NERC System Operator Certification Program staff. This can be done by Submit a Request[17] via the SOCCED Help Center. This first step can usually resolve the issue, and if it does, no further action is needed. If the issue is not resolved, the issue can be brought to the PCGC Dispute Resolution Task Force.

2. **Personnel Certification Governance Committee Dispute Resolution Task Force**

   If NERC staff did not resolve the issue to the satisfaction of the parties involved, a written request must be submitted to the chairperson of the PCGC through NERC staff within 45 days of the conversation with NERC staff explaining the issue(s) and requesting further action. Upon receipt of the letter, the PCGC chairperson will present the request to the PCGC Dispute Resolution Task Force for action. This task force consists of three current members of the PCGC. The PCGC Dispute Resolution Task Force will investigate and consider the issue presented and make a decision. This decision will then be communicated to the submitting party, the PCGC chairperson, and NERC staff within 45 calendar days of receipt of the request.

   If a French-Canadian or Mexican party raises a dispute, the PCGC shall appoint a French-Canadian interpreter, or a Spanish interpreter as requested.

3. **Personnel Certification Governance Committee**

   If the PCGC Dispute Resolution Task Force's decision did not resolve the issue(s) to the satisfaction of the parties involved, the final step in the process is for the issue(s) to be brought before the PCGC. Within 45 days of the date of the task force's decision, the disputing party shall submit a written request to the PCGC chairperson through NERC staff requesting that the issue(s) be brought before the PCGC for resolution. The chairperson shall see that the necessary documents and related data are provided to the PCGC members as soon as practical. The PCGC will then discuss the issue(s) and make their decision within 60 calendar days of the chairperson's receipt of the request. The decision will be provided to the person bringing the issue(s) and the NERC staff. The PCGC is the governing body of the certification program, and its decision on all disputes is final.

Process Expenses

All individual expenses associated with the process, including salaries, meetings, and consultant fees shall be the responsibility of the individual parties incurring the expense.

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[17] https://soccedsupport.zendesk.com/hc/en-us/requests/new

Decision Process

Robert's Rules of Order shall be used as a standard of conduct for the process. A majority vote of the members present will decide all issues. The vote will be taken in a closed session. No member of the PCGC may participate in the dispute resolution process other than the party or a witness that has an interest in the particular matter.

A stipulation of invoking the appeals process is that the party requesting the appeal agrees that neither NERC (its members, Board of Trustees, committees, subcommittees, and staff), any person assisting in the appeals process, nor any company employing a person assisting in the appeals process, shall be liable, and they shall be held harmless against the consequences of any action or inaction as well as harmless against any agreement reached in resolution of the dispute or any failure to reach agreement as a result of the appeals proceeding. This "hold harmless" clause[18] does not extend to matters constituting gross negligence, intentional misconduct, or a breach of confidentiality.

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[18] NERC Rules of Procedure; Section 5.1

Chapter 6: Disciplinary Actions (NERC Rules of Procedure)

Overview
This Disciplinary Action Procedure is necessary to protect the integrity of the system operator credentials. Should an individual act in a manner that is inconsistent with expectations, this procedure describes the process to investigate and take action necessary to protect the credential.

Grounds for Action
The following shall serve as grounds for disciplinary action:

- Willful violation and/or a gross violation of the NERC Reliability Standards as determined by a NERC investigation.

  - Both the organization and the certified system operator are bound by the NERC Reliability Standards. If a certified system operator, either in concert with the organization or on their own initiative, performs a willful violation and/or a gross violation of the NERC Reliability Standards, the organization and the certified system operator are both liable for those actions and disciplinary actions may be taken against them.

- Willful negligence and/or a gross negligence in performing the duties of a certified system operator as determined by a NERC investigation.

- Intentional misrepresentation of information provided to NERC for a system operator certification exam or to maintain a system operator credential using CEHs.

- Intentional misrepresentation of identification in the exam process, including an individual identifying as another person to obtain certification for the other person.

- Any form of cheating during a certification exam that includes, but is not limited to, bringing unauthorized reference material in the form of notes or other materials into the testing center.

- A certified system operator's admission to or conviction of any felony or misdemeanor directly related to their duties as a system operator.

- Creating a second account in SOCCED in order to register and pay for an exam under a different login and/or account name in order to bypass the 42-day wait period between examinations.

Hearing Process
Upon the report to NERC of a candidate's or certified system operator's alleged misconduct, the PCGC Credential Review Task Force will convene for the determination of facts. An individual, government agency, or other investigating authority may file a report. Unless the task force initially determines that the report of alleged misconduct is without merit, the candidate or certified system operator will be given the right to receive notice of the allegation. A hearing will be held, and the charged candidate or certified system operator will be given an opportunity to be heard and present further relevant information. The task force may seek out information from other involved parties. The hearing will not be open to the public, but it will be open to the charged candidate or the certified system operator and their representative. The task force will deliberate in a closed session, but the task force cannot receive any evidence during the closed session that was not developed during the course of the hearing.

Task Force's Decision

The task force's decision will be unanimous and will be in writing with the inclusion of the facts and reasons for the decision. The task force's written decision will be delivered to the PCGC (via email) and to the charged candidate or the certified system operator. If the task force is unable to reach a unanimous decision, the matter shall be brought to the full committee for one of the following decisions:

- **No Action:** The allegation of misconduct was determined to be unsubstantiated or inconsequential to the credential.

- **Probation:** NERC will send a letter to the offender specifying the length of probationary period (to be determined by the PCGC).

  - The Credential will remain valid during the probationary period.

  - The probationary period does not affect the expiration date of the current certificate.

  - During the probationary period, a subsequent offense of misconduct, as determined through the same process described above, may be cause for more serious consequences.

- **Revoke for Cause:** NERC will send a letter to the offender specifying the length of the revocation period (to be determined by the PCGC).

  - Credential is no longer valid.

  - The offender must successfully pass an exam to become recertified.

  - An exam will not be authorized until the revocation period expires.

- **Termination of Credential:** NERC will send a letter to the offender specifying permanent revocation of credential, and the offender will not be approved to sit for a future examination.

Credential Review Task Force

A Credential Review Task Force shall be comprised of three active members of the PCGC assigned by the chairperson of the PCGC on an ad hoc basis. No one on the credential review task force may have an interest in the particular matter. The task force will meet in a venue determined by the task force chairperson.

If a French-Canadian or Mexican party raises a dispute, the PCGC shall appoint a French-Canadian interpreter, or a Spanish interpreter as requested.

Appeal Process

The decision of the task force may be appealed using the NERC System Operator Certification Dispute Resolution process (see **Chapter 5:**).

Chapter 7: Glossary

G01. **Continuing Education Hour (CEH):** Based on 60 clock minutes and includes at least 50 minutes of participation in a group or self-study learning activity that meets the criteria of the NERC Credential Maintenance Program.

G02. **Continuing Education (CE) Provider**: The individual or organization responsible for setting learning objectives, developing the curriculum to achieve such objectives, offering a learning activity to participants, and maintaining documentation required by these criteria. The term CE Provider may include NERC, REs, operating and marketing entities, technical and industry societies and associations (whether formal or informal), consultants, vendors, colleges, universities, and training companies as well as employers who offer in-house learning activities.

G03. **Certification:** An official recognition that indicates the recipient has passed a NERC exam or completed a specified number of CEHs.

G04. **Credential:** NERC designation that indicates the level of qualification achieved (i.e., Reliability Operator; Balancing, Interchange, and Transmission Operator; Balancing and Interchange Operator; and Transmission Operator).

G05. **Credential Maintenance:** Meet NERC CEH requirements to maintain a valid NERC-issued system operator credential.

G06. **Expired:** A NERC certificate that has been suspended for more than 12 months. While in this state, a certificate holder cannot perform any task that requires an operator to be NERC certified. The certificate holder will be required to pass an exam to be certified again. Any CEHs accumulated prior to or during the expiration period will not be counted toward certificate maintenance.

G07. **NERC-Approved Learning Activity**: Training that maintains or improves professional competence and has been approved by NERC for use in its Credential Maintenance Program.

G08. **Probation:** A step in the disciplinary process during which the certificate is still valid. During the probationary period, a subsequent offense of misconduct, as determined through the same process as described above, may be cause for more serious consequences.

G09. **Revoke for Cause:** A step in the disciplinary process during which the certificate is no longer valid and requires successfully passing an exam to become certified. However, an exam will not be authorized until the revocation period expires. CEHs earned before or during this revocation period will not be counted for maintaining a credential.

G10. **Suspended:** Certificate status due to an insufficient number of CEHs being submitted prior to the expiration of a certificate. While in this state, a certificate holder cannot perform any task that requires an operator to be NERC certified.

G11. **Termination of Credential:** A step in the disciplinary process whereby a credential is permanently revoked.

G12. **Type of CEHs:** NERC-approved learning activity covering topics from **Appendix A,** NERC Reliability Standards, and/or simulations for which there is a minimum requirement for credential maintenance.

Appendix A: Recognized Operator Training Topics

Courses that provide CEHs for NERC Certification credential maintenance must relate to one or more specific recognized operator training topics, as they pertain to or support the BES reliability responsibilities of the system operator. Refer to the *NERC Credential Maintenance Program Administrative Manual* located on the One-Stop Shop[19] for more information about proper learning activity development.

1. **Basic Concepts**

   a. Basic ac/dc Electricity

      i. Capacitance

      ii. Inductance

      iii. Impedance

      iv. Real and reactive power

      v. Electrical circuits

      vi. Magnetism

   b. Basic Power System Mathematic Concepts

      i. Basic trigonometry

      ii. Ratios

      iii. Per unit values

      iv. Pythagorean Theorem

      v. Ohm's Law

      vi. Kirchhoff's Laws

   c. Characteristics of the BES

      i. Transmission lines

      ii. Transformers

      iii. Substations

      iv. Power plants

      v. Protection

      vi. Introduction to power system operations and interconnected operations

      vii. Frequency

      viii. Emerging technologies/equipment

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[19] https://www.nerc.com/pa/Train/SysOpCert/Pages/SOOneStopShop.aspx

2. **System Protection Principles**

    a. Transmission lines

    b. Transformers

    c. Busses

    d. Generators

    e. Relays and protection schemes

    f. Power system faults

    g. Synchronizing equipment

    h. Under-frequency load shedding

    i. Under-voltage load shedding

    j. Communication systems utilized

3. **Interconnected Power System Operations**

    a. Voltage control

    b. Frequency control

    c. Power system stability

    d. Facility outage both planned and unplanned

    e. Energy accounting

    f. Inadvertent energy

    g. Time error control

    h. Balancing of load and resources

4. **Emergency Operations**

    a. Loss of generation resource(s)

    b. Loss of transmission element(s)

    c. Operating reserves

    d. Contingency reserves

    e. Line loading relief

    f. Load shedding

    g. Voltage and reactive flows during emergencies

    h. Loss of EMS

    i. Loss of primary control center

5. **Power System Restoration**

    a. Restoration philosophies

    b. Facility restoration priorities

    c. Blackstart restoration

    d. Stability (angle and voltage)

    e. Islanding and synchronizing

6. **Market Operations**

    a. NAESB Standards

    b. Standards of conduct

    c. Tariffs

    d. OASIS applications (transmission reservations)

    e. E-Tag application

    f. Transaction scheduling

    g. Market applications

    h. Interchange

7. **Tools**

    a. Supervisory Control and Data Acquisition (SCADA)

    b. Automatic Generation Control (AGC) application

    c. Power flow application

    d. State estimator application

    e. Contingency analysis application

    f. P-V Curves

    g. Load forecasting application

    h. Energy accounting application

    i. Voice and data communication systems

    j. Demand-side management programs

8. **System Operator Situational Awareness**

    a. Identifying loss of facilities

    b. Recognizing loss of communication facilities

    c. Recognizing telemetry problems

    d.   Recognizing and identifying contingency problems

    e.   Proper communications (three-part)

    f.   Communication with appropriate entities, including the Reliability Coordinator

    g.   Cyber and physical security and threats

    h.   Reducing system operator errors through the use of human performance tools, such as self-checking, peer checking, place keeping, and procedure use

9. **Policies and Procedures**

    a.   ISO/RTO operational and emergency policies and procedures

    b.   Regional operational and emergency policies and procedures

    c.   Company-specific operational and emergency policies and procedures

10. **NERC Reliability Standards**

    a.   Application and/or implementation of NERC Reliability Standards

Appendix B: Program Manual Changes

Table B.1: Program Manual Changes				
Date	**Section**	**Page**	**Description**	**Version**
2/13/2025	All	All	NERC Board of Trustee Approved The manuals becomes effective March 25, 2025.	4.2
11/2024	Program Requirements	6	Original - 3.a. Added - 3.a.i., 3.a.i.1., 3.a.i.2., 3.a.i.3., 3.a.i.4. to provide more detailed information.	
	Learning Activities	12	Added – Training Frequency, Footnote 14. Removed - Emergency Operations Training Topics, Other Training Topics, Instructor Training.	
		13	Removed – NERC mailing address.	
2/15/2024		All	NERC Board of Trustees Approved	4.1
12/2023	Examination Process	2	Update link for PSI exam scheduling to: https://test-takers.psiexams.com/	4.0
	Deficits of CEHs for Credential Holders	9	Updated - Example and added SOCCED time zone.	
	Hardship Clause (NERC Rules of Procedure)	11	Updated - How Hardship Request Form should be submitted.	
	Appendix A Recognized Operator Training Topics	19	Updated - Appendix A Preamble, added Emerging Technologies/Equipment to Characteristics of the BES.	
2/2022	All	All	See the Mapping Document for a detailed list of changes between the current and previous manual version.	4.0
4/2020	Certification Exams	2	Exam cut scores updated effective June 1, 2020	3.2
10/2019	Preface	1	Updated NERC map and Regional Entities	3.1
09/2017	All Certification Examinations	All	Annual Review	3.0
		1	Added additional information to clarify how the EWG is involved in the exam development process.	
		All	Added language to explain in more detail the exam development process. Matched language with test	

Table B.1: Program Manual Changes				
Date	**Section**	**Page**	**Description**	**Version**
	Credential Maintenance	2 All 8	center vendor. Rearranged paragraphs for clarification. Added exam development process diagram. Updated language for clarification. Reorganized paragraphs for consistency. Added Certification Process Diagram.	
02/2017	Introduction Examinations **Appendix A**	v 1 16, 18	Added non-discriminatory statement. Updated Total Questions, Scored Questions, and Added Exam Cut Scores Added overview statement for **Appendix A** Topics and adjusted number 8 of the topics.	3.0
05/2016		All	Board Approved	3.0
03/2016	All	All 3 7	Document reviewed to confirm accurate information. Clarification of how 42-day wait period is calculated and 42-day wait period required regardless of exam failed. Reduction of renewal request timeframe to 6 months prior to expiration.	2.1
05/2014	All	All	Updated to reflect new exam vendor information. Also, corrected certificate expiration date example to reflect actual process.	2.1
02/2012	All		NERC address change Style and format changes throughout Eliminated detail instructions.	2.0
08/2010	Executive Summary, II and III	4, 16-23, 24, and 25	Review of content for consistency with current requirements	1.4
11/2009	All	All	Fee increase for exams and credential maintenance	1.3
10/2007	II	15	Category defined for carry-over CE hours.	1.3
08/2007	All	All	Updated instructions to include instructions for the new database	1.3
03/2007	IV	18	General housekeeping and added a 45-day limit to Step 3 of DRP. Added comment about waiting for official score when available before taking action on a dispute filed with the PCGC chair.	1.2

Table B.1: Program Manual Changes				
Date	**Section**	**Page**	**Description**	**Version**
03/2007	I	9	Remove certificate numbering convention	1.2
08/2006	III	16	Training providers retaining documentation	1
06/2006	All	All	CEH to CE Hours	1.1
06/2006	I and II	4, 17	Fees	1.1
02/2006	All	All	Program manual	1
05/2005	All	All	Initial white paper expanded SOC program to include CE hours	0