



Pipeline Corrosion Integrity Management (PCIM) Exam

Exam Preparation Guide

November 2020

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Introduction

The Pipeline Corrosion Integrity Management (PCIM) exam is designed to assess whether a candidate has the requisite knowledge, skills, and abilities (KSA) that a minimally qualified person responsible for implementation and/or management of an integrity program for a pipeline system must possess. The 50 questions are based on the KSAs a pipeline corrosion integrity manager needs to be successful in the job.

Exam Name	Pipeline Corrosion Integrity Management (PCIM) Exam
Time	1.5 Hours (90 minutes)
Number of Questions	50
Format	Live Online Remote Proctoring (Examity*)
Passing Score	Pass or Fail

**Delivered through Examity, NOT AT Pearson Testing Center*

Target Audience

Pipeline Corrosion Integrity Management (PCIM) benefits individuals responsible for implementation and/or management of an integrity program for a pipeline system with an emphasis on integrity verification and maintenance optimization.

Candidates who may successfully complete the PCIM course and exam are able to interpret integrity-related data, select and perform an overall integrity assessment on a pipeline system, and describe remediation activities and repair methods. Additionally, they are able to perform threat identification/assessment and post integrity assessment risk analysis, recall CFR 49 and integrity requirements, calculate and quantify risk, recommend solutions to company management on risk management issues, and perform integrity management planning.

Requirements

Requirements for Pipeline Corrosion Integrity Management

Prerequisites
<ul style="list-style-type: none">• None required for course
Core Course Requirements
<ul style="list-style-type: none">• Cathodic Protection 1 – Tester• Cathodic Protection 2 – Technician• Coatings in Conjunction with Cathodic Protection• CIP Level 2 (all recommended, not required)
Core Exam Requirements
<ul style="list-style-type: none">• Pipeline Corrosion Integrity Management (PCIM) Exam
Application Requirements
<ul style="list-style-type: none">• None required

Exam Body of Knowledge

NOTE: At the end of the exam, the candidate will receive a chart with strengths and weaknesses that correspond to the Domains listed below. You will have the option to email or print it.

1. INTRODUCTION TO PIPELINE INTEGRITY

- 1.1 Pipeline Integrity
- 1.2 Overview of Impact of Corrosion on Pipelines
- 1.3 Other Threats to Pipeline Integrity (non-corrosion related)
- 1.4 Purpose of Pipeline Integrity Programs
- 1.5 Public Safety
- 1.6 Reliability and Deliverability of the Pipeline System
- 1.7 Asset Preservation
- 1.8 Maintenance Optimization
- 1.9 Economics

2. MANAGING CORROSION

- 2.1 Forms of Corrosion
- 2.2 Overview of Corrosion Control Methods
- 2.3 Time-Related Pipeline Defect Types
- 2.4 Inspection Methods
- 2.5 Stress Corrosion Cracking
- 2.6 Corrosion Monitoring Methods
- 2.7 External Corrosion
- 2.8 Corrosion Mediation Methods

3. REGULATIONS

- 3.1 Overview of 49 CFR and Integrity Requirements

4. STANDARDS

- 4.1 Summary of Standards

5. DATA COLLECTION, VERIFICATION, AND INTEGRATION

- 5.1 Introduction
- 5.2 Data Collection
- 5.3 Data Validation
- 5.4 Data Integration
- 5.5 Summary

6. RISK ASSESSMENT

- 6.1 Risk Assessment
- 6.2 Overview of Risk Assessment Objectives
- 6.3 History of Failure / Probability of Failure
- 6.4 Consequence Analysis
- 6.5 Prescriptive and Performance Based
- 6.6 Risk Assessment Models
- 6.7 Calculating and Quantifying Risk
- 6.8 Risk Minimization Through Corrosion Control
- 6.9 Integrity Verification

7. INTEGRITY VERIFICATION / ASSESSMENT

- 7.1 Performing an Overall Assessment on a Pipeline System
- 7.2 Criteria for Selecting an Integrity Method

8. TECHNICAL CHALLENGES TO PIPELINE INTEGRITY

- 8.1 Introduction
- 8.2 Material Properties and Defects
- 8.3 Pipe Manufacturing
- 8.4 Pipeline Construction
- 8.5 Pipeline Operations and Service
- 8.6 Outside Forces
- 8.7 Time Dependent Mechanisms
- 8.8 Summary

9. REMEDIATION ACTIVITY / REPAIR METHODS

- 9.1 Discovery of Anomalies
- 9.2 Defect Characterizations
- 9.3 Development of a Repair Plan
- 9.4 Repair Protocol for “High Consequence Areas” (HCA) Pipeline
- 9.5 Types of Remediation Activities / Repair Methods

10. INSPECTION AND ASSESSMENT INTERVALS

- 10.1 Assessment Intervals
- 10.2 Remaining Life
- 10.3 Growth Rate
- 10.4 Confirmatory Direct Assessment
- 10.5 External Corrosion Confirmatory Direct Assessment (EC-CDA)
- 10.6 Internal Corrosion Confirmatory Direct Assessment (IC-CDA)

11. POST INTEGRITY ASSESSMENT RISK ANALYSIS

- 11.1 Risk Re-assessment in Response to Management of Change Processes
- 11.2 Risk Re-assessment in Response to Changes Due to Remediation
- 11.3 The Need for Electronic Database for Data Integration
- 11.4 Specific Data That Should Be Integrated into Risk Assessment Plans

12. INTEGRITY MANAGEMENT PLAN

- 12.1 Integrity Management Plan

13. MANAGEMENT PERSPECTIVES

- 13.1 Case Studies

Types of Questions

Description of Questions

This open-book exam consists of multiple-choice questions where some questions require one answer and some require more than one answer choice. Questions that require more than one answer will include the note **SELECT ALL THAT APPLY**.

The questions are based on the knowledge and skills required in the pipeline corrosion integrity management industry.

Sample Questions

The sample questions are included to illustrate the formats and types of questions that will be on the exam. Your performance on the sample questions should not be viewed as a predictor of your performance on the actual exam.

1. Cathodic protection (CP) shielding is an integrity issue associated with which of the following?

SELECT ALL THAT APPLY

- A. Pipeline casings
 - B. Shielding environments, such as rock backfill
 - C. Pavement on ground surfaces above pipelines
 - D. Shielding external coatings, such as tapes and shrink sleeves
-
2. What does NACE SP0102 primarily address?
 - A. ILI
 - B. ECDA
 - C. SCCDA
 - D. DG-ICDA

Answer Key:

1. **A, B, D**

Reference: PCIM Course Manual

2. **A**

Reference: PCIM Course Manual

Preparation

Required Training

NACE Pipeline Corrosion Integrity Management course

Suggested Study Material

NACE Pipeline Corrosion Integrity Management Course Manual

Reference Material Provided During Exam

The PCIM Course Manual is provided in electronic form during the exam.

What to Expect on Test Day

Remote Online Exam Proctoring

** Remote online proctored exams are offered for select exams.*

The NACE Institute has partnered with Examity to offer remote online proctoring for the Pipeline Corrosion Integrity Management (PCIM) Exam. With the new Examity platform, you can take the exam from home without arranging for a proctor or traveling to a test site. Please visit this link for information you should know.

<https://naceinstitute.org/certification-resources/online-exam-proctoring>

Examity Demonstration with Automated Proctor

Please visit this link for a demonstration of the computer-based exam. You will have the opportunity to get familiar with how it all works.

<https://vimeo.com/399635210/2eb75207b8>

Computer-Based Exam Tutorial

Please visit this link for a demonstration of the computer-based exam. You will have the opportunity to practice answering a variety of questions to help you get familiar the CBT exam format. You will also receive this tutorial link when you register for the exam:

[NACE Examity Tutorial Video](#)