

Energy Formation



OUR TRAINING
PACKAGE

NETWORK INTEGRITY

GROUND SECTOR



FEBRUARY 2024

Providing our expertise in cathodic protection to protect your installations

Discover our range of training courses designed to slow down corrosion.

Sylvain Batard

Energy Formation certified
Level 4 Instructor-Developer

What are the challenges relating to cathodic protection for the operators?

The interministerial decree on multi-fluids requires transporters of hazardous products to guarantee the integrity of their infrastructure, and certify the competency of their technicians. To meet these increasingly stringent business requirements, we are constantly evolving and providing support to operators.

What is the role of Energy Formation in this context?

We prepare our trainees for their certification, from

level 1 to level 4, for which they take an exam with an independent body. We provide state-of-the-art educational facilities for this purpose. Our training programs are aimed at companies in the gas and oil industry or transporting any type of gas.

\\ **The decree on multi-fluids requires operators to certify the competency of their technicians.** //



Energy Formation is Qualiopi certified.
Moreover, upon completion of our training courses, participants are awarded a certificate of achievement.



NETWORK INTEGRITY GROUND SECTOR



We offer customised training courses, consultancy services, diagnosis of the cathodic protection installations on your site, complex and technical measurements, local or remote support or the development of your software. Our instructors adapt your needs and your business context

Price: Contact us



Cathodic Protection Network

over
field of
cathodic
protection >



Provide our expertise in cathodic protection installations

Discover our range of training courses designed to slow down corrosion

Sylvain Batard
Energy Formation certified Level 4 Instructor-Developer

What are the challenges relating to cathodic protection for the operators?

The interministerial decree on multi-fluids requires transporters of hazardous products to guarantee the integrity of their infrastructure, and certify the competency of their technicians. To meet these increasingly stringent business requirements, we are constantly evolving and providing support to operators.

What is the role of Energy Formation in this context?

We prepare our trainees for their certification, from

NETWORK INTEGRITY

GROUND SECTOR

Cathodic protection certification

	INTRODUCTION	PREPARATION FOR CERTIFICATION	PREPARATION FOR CERTIFICATION RENEWAL
LEVEL 1		EFZ106* p.05 Preparation for the cathodic protection technician certification renewal	
LEVEL 2	EFZ107 p.07 Introduction to the cathodic protection technician activity	EFZ109* p.07 Preparation for the cathodic protection technician certification	EFZ217 p.08 Preparation for the cathodic protection technician certification renewal
LEVEL 3	EFZ108 p.10 Introduction to the senior cathodic protection technician activity	EFZ110* p.11 Preparation for the senior cathodic protection technician certification	EFZ218 p.11 Preparation for the senior cathodic protection technician certification renewal
LEVEL 4		EFB219* p.13 Prepare for Ground sector cathodic protection certification.	

* At the end of the course, the trainee is prepared to take the corresponding CEFRACOR certification test (not included in the course). Trainees must register for the test with CEFRACOR.

Complementary cathodic protection offer

Introduction to cathodic protection	EFZ166 p.15
Manage and schedule the cathodic protection activity	EFZ160 p.15
Cathodic Protection: Fault detection and location in coatings	EFZ214 p.16
Direct stray currents: origins and processing	EFZ184 p.16
Analyse and process alternating stray currents	EFZ1001 p.17
Support for obtaining Level 2 or Level 3 certification	EFZ140 p.17

Complementary passive protection offer

Apply the 3 types of anti-corrosion coatings and prepare for CEFRACOR Level 1 "coating installation" certification	EFZ4444** p.19
Preparation for the CEFRACOR "coating installation" certification	EFZ445** p.19

** At the end of the course, the trainee is prepared to take the corresponding certification test, which may be administered on the Energy Formation campus. Trainees must register for the test with CEFRACOR.

Technical and instructional methods

Practical and theoretical classroom training, latest generation equipment and a 900 m underground gas network dedicated to cathodic protection certified by CEFRACOR.

Energy Formation extras

After the trainees have completed the in-person learning portion of the course, an instructor assesses the progress made by the group in each exercise via KPIs. Each trainee is evaluated individually at the end of the session.

In accordance with NF EN ISO 15257, a certificate of achievement will be issued at the end of the course.

We offer customised training courses, consultancy services, diagnosis of the cathodic protection installations on your site, complex and technical measurements, local or remote support for the development of your software. Our instructors adapt your needs and your business context

Price: Contact us



Cathodic Protection Network

over field of cathodic protection >



Provide
our ex
in cat
protec
protec
install

Discover our range of tra
designed to slow down c

Sylvain Batard
Energy Formation certified
Level 4 Instructor-Developpe

**What are the challenges
relating to cathodic
protection for the
operators?**

The interministerial decre
on multi-fluids requires
transporters of hazardous
products to guarantee
the integrity of their
infrastructure, and certify
the competency of their
technicians. To meet these
increasingly stringent
business requirements,
we are constantly evolving
and providing support to
operators.

**What is the role of Energy
Formation in this context?**

We prepare our trainees
for their certification, from



TRAINING COURSES

Level 1

Cathodic protection data collector or inspector

PREREQUISITES:

- 3 to 4 weeks of experience in the collection of cathodic protection measurements
- Fundamentals in mathematics and electricity
- Use of a digital multimeter

Z106

Preparation
for the Level 1 cathodic
protection inspector
certification

IN-PERSON LEARNING

28 hours - 4 days 



Skills acquired will be assessed at the end of the course.
The results will be sent to the employer and the trainees.
At the end of this course, the trainees can register for the
CFPC (French Committee for Cathodic Protection) Level 1
certification

Z106

PREPARATION FOR THE CATHODIC PROTECTION INSPECTOR CERTIFICATION - LEVEL 1

DURATION: 28 hours - 4 days

TARGET AUDIENCE:

Cathodic protection
inspector performing simple
measurements

Objectives of the training course

- Acquire or improve the required theoretical, technical and regulatory knowledge associated with the tasks to be carried out by a Level 1 employee in the field of cathodic protection,
- Improve operational skills for cathodic protection measurements and equipment maintenance activities,
- Pass the practical and theoretical examination requiring basic knowledge in order to obtain qualification or to prepare the Level 1 qualification or certification.

Skills developed

- Name and use electrical, electrochemical and metal corrosion quantities and relationships as applied to cathodic protection,
- Explain the principles, requirements and criteria set out in the standards and practical recommendations relating to cathodic protection applied to your Level 1 cathodic protection inspection activity,
- Know how to perform and complete all measurements and inspection and maintenance operations within the scope of your level of competence while knowing how to identify anomalies and deal with them, and ensuring your own safety and that of the equipment,
- Use the measured data to provide a diagnosis and define an adapted action plan.



We offer customised
training courses,
consultancy services,
diagnosis of the
cathodic protection
installations on your
site, complex and
technical measurements,
local or remote support
the development of
your software.
Our instructors adapt
your needs and your
business context

Price: Contact us



Cathodic Protection Network

over
field of
cathodic
protection >





TRAINING COURSES

Level 2 Cathodic protection technician

PREREQUISITES:

- 3 to 4 weeks of experience in the collection of cathodic protection measurement data
- Fundamentals in mathematics and electricity
- Use of a digital multimeter

INTRODUCTION TO THE ACTIVITY

Z107

Introduction to the Level 2 cathodic protection technician activity

IN-PERSON LEARNING
35 hours - 5 days

PREPARATION FOR CERTIFICATION

Z109*

Preparation for the Level 2 cathodic protection technician certification

IN-PERSON LEARNING
70 hours - 10 days

After 10 years of activity

Z217*

Preparation for the Level 2 cathodic protection technician certification renewal

IN-PERSON LEARNING
21 hours - 3 days

Z107

INTRODUCTION TO THE CATHODIC PROTECTION TECHNICIAN ACTIVITY - LEVEL 2

DURATION: 35 hours - 5 days

TARGET AUDIENCE:

Cathodic protection inspector performing simple measurements or technicians directly concerned by Level 2

PREREQUISITES:

The employee attending the course must have one year of experience in cathodic protection

OR have completed the Z106 course and worked under the supervision of a qualified or Level 2 certified technician allowing sufficient time to understand the full extent of the Level 2 cathodic protection activity

Objectives of the training course

- Acquire minimum theoretical, technical and regulatory knowledge associated with the tasks to be carried out by a Level 2 employee in the field of cathodic protection.

Skills developed

- Name and use electrical, electrochemical and metal corrosion quantities and relationships as applied to cathodic protection,
- Explain the principles, requirements and criteria set out in the standards and practical recommendations relating to cathodic protection applied to the Level 2 cathodic protection technician activity,
- Know how to perform and complete all measurements and inspection and maintenance operations within the scope of your level of competence while knowing how to identify anomalies and deal with them, and ensuring your own safety and that of the equipment,
- Be prepared to attend the Z109 course in order to apply for the Level 2 cathodic protection technician certification.

Energy Formation extras

The diversity and extent of the educational networks allow for optimal adaptation to the daily activities of the technicians

Z109

PREPARATION FOR THE CATHODIC PROTECTION TECHNICIAN CERTIFICATION - LEVEL 2

DURATION: 70 hours - 10 days

TARGET AUDIENCE:

Cathodic protection inspector performing simple measurements
Temporary Level 2 technician

Experienced cathodic protection technician directly preparing for the Level 2 certification

PREREQUISITES:

One year of experience in cathodic protection

OR have completed the Z107 course and worked under the supervision of a qualified technician

OR Level 2 certification allowing sufficient time to successfully complete the considered assessments

Objectives of the training course

- Acquire or improve basic theoretical, technical and regulatory knowledge associated with the tasks that Level 2 employees must perform, in the field of cathodic protection,
- Improve operational skills for performing cathodic protection measurements and carrying out equipment maintenance activities,
- Be prepared to apply for the Level 2 cathodic protection certification.

Skills developed

- Name and use electrical, electrochemical and metal corrosion quantities and relationships as applied to cathodic protection,
- Explain the principles, requirements and criteria set out in the practical standards and recommendations relating to cathodic protection and applied to your Level 2 cathodic protection technician activity,
- Use the data measured to provide a diagnosis and define an adapted action plan,
- Pass the Level 2 cathodic protection technician certification examination.

We offer customised training courses, consultancy services, diagnosis of the installations on your site, complex and technical measurements, local or remote support and the development of your software. Our instructors adapt your needs and your business context

Price: Contact us



Cathodic Protection Network



over field of odic ection >

Provid
our ex
in cat
protec
protec
install

Discover our range of tra
designed to slow down c

Sylvain Batard

Energy Formation certified
Level 4 Instructor-Develope

What are the challenges relating to cathodic protection for the operators?

The interministerial decre
on multi-fluids requires
transporters of hazardous
products to guarantee
the integrity of their
infrastructure, and certify
the competency of their
technicians. To meet these
increasingly stringent
business requirements,
we are constantly evolving
and providing support to
operators.

What is the role of Energy Formation in this context?

We prepare our trainees
for their certification, from

*At the end of this course, trainees can apply for the CFPC Level 2 certification

Provide
our ex
in cath
protect
protect
install

Discover our range of tra
designed to slow down c

Sylvain Batard
Energy Formation certified
Level 4 Instructor-Developpe

**What are the challenges
relating to cathodic
protection for the
operators?**

The interministerial decre
on multi-fluids requires
transporters of hazardous
products to guarantee
the integrity of their
infrastructure, and certify
the competency of their
technicians. To meet these
increasingly stringent
business requirements,
we are constantly evolving
and providing support to
operators.

**What is the role of Energy
Formation in this context?**

We prepare our trainees
for their certification, from

Z217

PREPARATION FOR THE CATHODIC PROTECTION TECHNICIAN CERTIFICATION RENEWAL - LEVEL 2

DURATION: 21 hours - 3 days

TARGET AUDIENCE:

Employees with 10-year Level 2 qualification or certification in cathodic protection

PREREQUISITES:

Carry out cathodic protection activities with a 10-year Level 2 qualification or certification.

Objectives of the training course

- Carry out Level 2 cathodic protection activities, with updated skills and taking into account the evolution of the measurement techniques related to the upgrade of the equipment and changes in regulations.

Skills developed

- State and describe the techniques and regulations relating to cathodic protection,
- Identify and correct deviations between applications and rules of best practice,
- Reorganise your activities in accordance with the regulations in force and the new techniques for monitoring cathodic protection performance.



TRAINING COURSES

Level 3 Senior cathodic protection technician

PREREQUISITES:

- 4 years of experience without any specific level
- OR
- 2 years of experience with Level 2
 - Fundamentals in mathematics and electricity

**INTRODUCTION
TO THE ACTIVITY**

Z108

Introduction to the Level 3 senior cathodic protection technician activity

IN-PERSON LEARNING
35 hours - 5 days

**PREPARATION
FOR CERTIFICATION**

Z110*

Preparation for the Level 3 senior cathodic protection technician certification

IN-PERSON LEARNING
70 hours - 10 days

After 10 years of activity

Z218

Preparation for the Level 3 senior cathodic protection technician certification renewal

IN-PERSON LEARNING
21 hours - 3 days

*At the end of this course, trainees can apply for the CFPC Level 3 certification

We offer customised training courses, consultancy services, diagnosis of the cathodic protection installations on your site, complex and technical measurements, local or remote support - the development of your software. Our instructors adapt your needs and your business context

Price: Contact us



Cathodic Protection Network

over
field of
cathodic
protection >



Providing our expertise in cathodic protection installations

Discover our range of training courses designed to slow down corrosion

Sylvain Batard
Energy Formation certified
Level 4 Instructor-Developer

What are the challenges relating to cathodic protection for the operators?

The interministerial decree on multi-fluids requires transporters of hazardous products to guarantee the integrity of their infrastructure, and certify the competency of their technicians. To meet these increasingly stringent business requirements, we are constantly evolving and providing support to operators.

What is the role of Energy Formation in this context?

We prepare our trainees for their certification, from

Z108

INTRODUCTION TO THE SENIOR CATHODIC PROTECTION TECHNICIAN ACTIVITY - LEVEL 3

DURATION: 35 hours - 5 days

TARGET AUDIENCE:

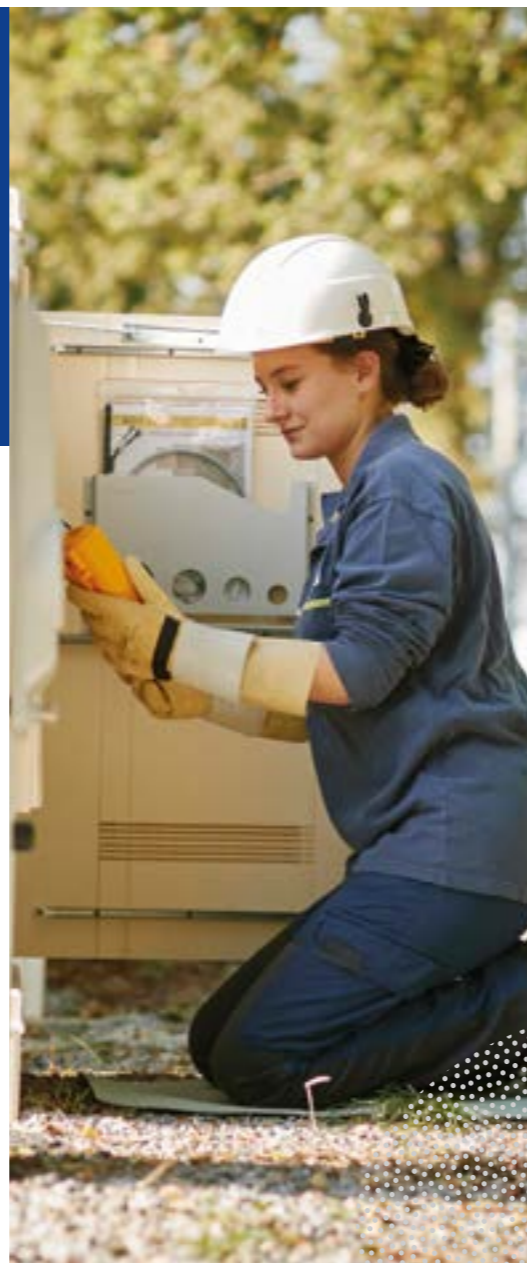
Cathodic protection technician directly concerned with Level 3

Objectives of the training course

- Acquire the theoretical, technical and regulatory knowledge associated with the cathodic protection tasks that an employee with the concerned level must carry out,
- Acquire operational skills in studying, analysing and writing technical instructions for lower level employees in charge of the cathodic protection measurement and equipment maintenance activity.

Skills developed

- Name and use electrical, electrochemical and metal corrosion quantities and relationships as applied to cathodic protection,
- Explain the principles, requirements and criteria set out in the standards and practical recommendations relating to cathodic protection applied to your activity as a Level 3 senior cathodic protection technician,
- Perform and complete all measurements and inspection and maintenance operations within the scope of your level of competence while knowing how to identify anomalies detected and deal with them, and ensuring your own safety and that of the equipment,
- Write technical instructions for the employees in charge of cathodic protection measurements and equipment maintenance activities,
- Carry out studies and analyses associated with the equipment and measurement campaigns falling within your level of competence, while knowing how to identify and deal with the anomalies detected,
- Use the measured data to provide a diagnosis and define an adapted action plan,
- Attend the Z110 training course (Preparation for Level 3 senior cathodic protection qualification or certification).



Z110

PREPARATION FOR THE SENIOR CATHODIC PROTECTION TECHNICIAN CERTIFICATION - LEVEL 3

DURATION: 70 hours - 10 days

TARGET AUDIENCE:

Cathodic protection technician directly concerned with Level 3

PREREQUISITES:

Without any specific level having attended the Z108 Level temporary senior technician course and worked under supervision of a Level 3 senior or Level 4 expert technician for sufficient time to successfully pass the Level 3 certification

Objectives of the training course

- Acquire or develop basic theoretical, technical and regulatory knowledge associated with the tasks that a Level 3 employee must perform,
- Acquire and improve operational skills in studying, analysing and writing technical instructions for lower level employees in charge of the cathodic protection measurement and equipment maintenance activity,
- Be prepared to apply for the Level 3 certification.

Skills developed

- Name and use electrical, electrochemical and metal corrosion quantities and relationships as applied to cathodic protection,
- Explain the principles, requirements and criteria set out in the standards and practical recommendations relating to cathodic protection applied to your Level 3 senior cathodic protection activity,
- Know how to perform and complete all measurements and inspection and maintenance operations within the scope of your level of competence,
- Know how to write technical instructions for the employees in charge of cathodic protection measurement and equipment maintenance activities,
- Know how to carry out studies and analyses associated with the equipment and measurement campaigns falling within your level of competence, while knowing how to identify and deal with any anomalies detected,
- Use the measured data to establish a diagnosis and define an adapted action plan.

Z218

PREPARATION FOR THE SENIOR CATHODIC PROTECTION TECHNICIAN CERTIFICATION RENEWAL - LEVEL 3

DURATION: 21 hours - 3 days

TARGET AUDIENCE:

Employees with 10-year Level 3 qualification or certification in cathodic protection

PREREQUISITES:

Perform the cathodic protection activities with a 10-year Level 3 qualification or certification.

Objectives of the training course

- Carry out Level 3 cathodic protection activities, with updated skills and taking into account the evolution of the measurement techniques related to the upgrade of the equipment and changes in regulations.

Skills developed

- Acquire or develop theoretical, technical and regulatory knowledge associated with the tasks to be performed by a Level 3 officer in the field of cathodic protection,
- Improve operational skills for studies, execution, setting to work and case analyses relating to cathodic protection,
- Successfully pass the practical and theoretical examination requiring basic knowledge in order to obtain qualification renewal and/or to pass the Level 3 cathodic protection qualification renewal, in accordance with standard NF EN ISO 15257.

Energy Formation extras

The individual assessment of skills acquired is carried out after passing the certification renewal examination (registration required with the CFPC <https://protectioncathodique.net/cfpc-certification/inscription-aux-examens/>) or qualification renewal examination (registration required for session Q110).

We offer customised training courses, consultancy services, diagnosis of the cathodic protection installations on your site, complex and technical measurements, local or remote support or the development of your software. Our instructors adapt your needs and your business context

Price: Contact us



Cathodic Protection Network

over field of odic ection >



Provide our expertise in cathodic protection installations

Discover our range of training courses designed to slow down corrosion

Sylvain Batard
Energy Formation certified Level 4 Instructor-Developer

What are the challenges relating to cathodic protection for the operators?

The interministerial decree on multi-fluids requires transporters of hazardous products to guarantee the integrity of their infrastructure, and certify the competency of their technicians. To meet these increasingly stringent business requirements, we are constantly evolving and providing support to operators.

What is the role of Energy Formation in this context?

We prepare our trainees for their certification, from



TRAINING COURSES

Level 4

B219

SERIES OF GROUPINGS ON OUR CAMPUSES AND ON COMPLEX STRUCTURES

Initiation of the support program

Presentation of the course and tools
DISTANCE LEARNING
2 hours

Grouping 1

Self-diagnosis, building of an action plan and structuring of the working method
IN-PERSON LEARNING
3 days

Grouping 2

Alternating currents
IN-PERSON LEARNING
3 days

Grouping 3

Complex structures
IN-PERSON LEARNING
3 days

Grouping 4

Non-simple networks, electrochemistry and preparation for servicing
IN-PERSON LEARNING
3 days

Grouping 5

Examination simulation and additional adjustments
IN-PERSON LEARNING
3 days

BETWEEN 7 AND 12 MONTHS

COMPLEMENTARY RESOURCES

Weekly review

Assessment of the time spent, difficulty, action plan for the following courses
DISTANCE LEARNING
15 x 1 hour

On-line training channel

Input on all domains and examination training sessions
DISTANCE LEARNING
no time limit

B219

PREPARE FOR GROUND SECTOR CATHODIC PROTECTION CERTIFICATION - LEVEL 4

DURATION: 120 hours - 17 days

TARGET AUDIENCE:

Cathodic protection technicians or experts with at least 12 years experience in the field

PREREQUISITES:

The trainee has attended the Z184 training course before or during the support program and has been performing the activities for at least 12 years. As the certification tests cover the body of knowledge from Level 1 to Level 4, it is also strongly recommended to attend the Z110 training course during the support program.

Objectives of the training course

In work situations, the employee must:

- Carry out the Level 4 cathodic protection tasks stated in standard NF EN ISO 15257,
- Assess buried steel networks under cathodic protection.

Skills developed

- Write a document summary in the form of a mind map based on a standard, recommendation or regulatory text,
- Design and analyse a pipeline network under cathodic protection subjected to alternating current electrical influences based on standards NF EN ISO 18086 and NF EN 50443,
- Design and analyse a pipeline network under cathodic protection in a complex structure as per standard NF EN 14505,
- Explain the phenomenon of embrittlement of steel by hydrogen as well as the resulting risks in the case of coated pipelines under cathodic protection,
- Size and analyse a network of "non-simple" pipelines based on standard NF EN ISO 15589-1,
- Name, explain and use the electrochemical formulas mentioned in the Level 4 examination program (Nernst equation, Faraday's Law, Pourbaix Diagram, corrosion rate calculation, etc.).



We offer customised training courses, consultancy services, diagnosis of the cathodic protection installations on your site, complex and technical measurements, local or remote support for the development of your software. Our instructors adapt to your needs and your business context

Price: Contact us



Cathodic Protection Network

Technical and instructional methods

- This multimodal support program consists in alternating classroom meetings (5 three-day meetings), weekly one-hour review with the instructor and independent work.





TRAINING COURSES

Complementary cathodic protection offer

Z166


Introduction to cathodic protection
IN-PERSON LEARNING
24 hours - 3 days

Z160

Manage and schedule the cathodic protection activity
IN-PERSON LEARNING
21 hours - 3 days

Z214

Fault detection and location in coatings (refresher course)
IN-PERSON LEARNING
28 hours - 4 days

VAC: validation of prior learning certificate 

Z184

Direct stray currents: origins and processing
IN-PERSON LEARNING
35 hours - 5 days

Z1001

Analyse and process alternating stray currents
IN-PERSON LEARNING
28 hours - 4 days



Z140

Support for obtaining Level 2 and Level 3 cathodic certification
IN-PERSON LEARNING
7 hours - 1 day



Z166

INTRODUCTION TO CATHODIC PROTECTION

DURATION: 21 hours - 3 days

TARGET AUDIENCE:

This course is designed for beginners and can be taken independently of any other course. It also provides further professional training for staff from the Office of Operations and Incident Management, Project Decision Owner, Project Execution Owner, Intervention Agency, Programming and Planning of Interventions Agency, Industrial Purchasing Policy Committee, and Purchasing.

PREREQUISITES:

No prerequisites. However, prior knowledge of the infrastructure involved will facilitate the learning process.

Objectives of the training course

- Understand your activity and role in organising cathodic protection
- Apply a general culture of cathodic protection.
- Identify the relevant regulations.

Skills developed:

- Indicate which regulatory text concerning CP applies to your company.
- Describe the corrosion processes
- Explain the causes of corrosion (electro-chemical, chemical, bacterial, geological batteries, galvanic corrosion, train/tramway rails, etc.)
- Describe two types of protection: passive and active
- Identify CP equipment.
- Explain your job in relation to CP.

Technical and instructional methods

- Work simulation for the trainees on instructional installations and networks on the Training Department sites, as close as possible to the equipment and networks present in operation. Documentation given to each participant.

Z160

MANAGE AND SCHEDULE THE CATHODIC PROTECTION ACTIVITY

DURATION: 21 hours - 3 days

TARGET AUDIENCE:

All GRDF and GRTgaz employees who supervise a department or cathodic protection activities but do not necessarily perform the activities themselves.

PREREQUISITES:

Be in charge of the management of the cathodic protection department or activity of its entity.

Objectives of the training course

- The supervisor must manage and schedule the cathodic protection activity, and is fully responsible for the integration of constraints and regulatory obligations.

Skills developed

Knowledge:

- State and describe the principles and causes of corrosion on buried steel pipelines and the means to prevent it within ENGIE,
- State and describe all the regulatory texts and/or standards by associating the activities to be carried out by a Level 1 or 2 qualified or certified cathodic protection officer.

Know-how:

- Quantify the range of tasks required of a Level 1 or Level 2 qualified or certified officer for activity planning,
- Identify possible deficiencies in the performance of cathodic protection related activities relating to your officers or contractors.

After reading through all the regulatory texts and standards in force, the trainee will be required to associate them to the tasks which must be carried out by Level 1 and 2 cathodic protection officers under your responsibility. In parallel, the technical aspect of cathodic protection, both from a theoretical and practical point of view, will be addressed in order to explain the concepts and to enable the trainee to better understand the activity.

Technical and instructional methods

- Work simulation for the trainees on instructional installations and networks on the Training Department sites, as close as possible to the equipment and networks present in operation. Documentation given to each participant.



We offer customised training courses, consultancy services, diagnosis of the cathodic protection installations on your site, complex and technical measurements, local or remote support in the development of your software. Our instructors adapt your needs and your business context

Price: Contact us



Cathodic Protection Network



over field of odic ection >



Z214

CATHODIC PROTECTION: FAULT DETECTION AND LOCATION IN COATINGS



DURATION: 28 hours - 4 days

TARGET AUDIENCE:

Level 2 cathodic protection operator carrying out activities relating to fault detection and location in coatings as a contractor or employee of a gas network operator.

PREREQUISITES:

For Level 2 cathodic protection operators (NF EN ISO 15257) able to provide evidence of one year of experience in Ground sector cathodic protection.

Objectives of the training course

In a professional situation and within the framework of your activities, Level 2 cathodic protection operators must:

- Supervise and carry out fault detection and location in coatings based on electrical surface measurements on the contractor's buried infrastructure,
- Present the results of your research in a report of a given format specific to each contractor.

Skills developed

- Identify the policy related to fault detection. (Professional Guide, Ministerial Order, NF EN ISO 15257, NF EN 13509, PCRA (cathodic protection and associated coatings) recommendation 002 and 011),
- Use the company's procedures and operating methods, be aware of the risks specific to the activity and the prevention and safety rules,
- Identify the equipment required to detect and locate faults in coatings and explain the operating principles,
- Select the appropriate detection method and equipment for the structure concerned by fault detection and location in coatings,
- Configure the structure and equipment to detect and locate faults in coatings,
- Record the results of your research in a given format specific to each contractor.

Z184

DIRECT STRAY CURRENTS: ORIGINS AND PROCESSING



DURATION: 35 hours - 5 days

TARGET AUDIENCE:

Level 3 or Level 2 senior cathodic protection technician.

PREREQUISITES:

Be a Level 3 senior cathodic protection technician

Objectives of the training course

- Analyse the cathodic protection measurements subjected to dynamic direct stray currents and identify corrective actions.

Skills developed

- Identify and describe a DC "influence" and explain how to solve it,
- Provide an accurate diagnosis of the functioning of a drainage system,
- Processing malfunctions of a drainage and cathodic protection system subjected to direct stray currents,
- Explain the basic operation of a DC railway installation,
- Analyse a measurement performed on a metallic test coupon in accordance with standards ISO 15589-1 and ISO 21857,
- Design a drainage system adapted to the situation.

Z1001

ANALYSE AND PROCESS ALTERNATING STRAY CURRENTS



DURATION: 28 hours - 4 days

TARGET AUDIENCE:

Level 3 CP technician

PREREQUISITES:

- Be a Level 3 CP technician (certified or qualified)
- Familiarity with basic concepts in mathematics, chemistry, electrochemistry and electricity as applied to cathodic protection

Objectives of the training course

- In a work situation, the employee must analyse the impact of interference from alternating current and take corrective action.

Skills developed

Knowledge:

- Explain the 3 possible effects caused by AC sources
- Describe the impact of steady-state and fault conditions under the influence of AC sources
- Describe the electrochemical effects that characterize AC-induced corrosion
- List additional methods available to mitigate AC-induced corrosion

Know-how:

- Carry out and analyse measurements to assess the risk of corrosion of a structure subject to the effects of AC
- Design and install the equipment needed to combat the effects of AC on a structure
- Ensure your own safety and that of your equipment under the influence of AC sources.

Technical and instructional methods

Work simulation for the trainees on instructional installations and networks on the Training Department sites, as close as possible to the equipment and networks present in operation. Documentation given to each participant.

Z140

SUPPORT FOR OBTAINING LEVEL 2/3 CERTIFICATION (REFRESHER COURSE)

DURATION: 7 hours - 1 day

TARGET AUDIENCE:

Cathodic protection technicians who will be required to carry out level 2 or 3 tasks as defined in NF EN ISO.

PREREQUISITES:

Having attended training course Z110 and passed the "Level 3 senior cathodic protection technician" certification examination

Objectives of the training course

- Retake the CFPC "Level 3 senior cathodic protection technician" certification examination.

Skills developed

- Successfully pass the theoretical and/or practical evaluation.

Technical and instructional methods

- Alternating theoretical background and exchanges. The educational program is identical to that of training course Z110,
- Documentation given to each participant.

Providing our expertise in cathodic protection installations

Discover our range of training courses designed to slow down corrosion

Sylvain Batard
Energy Formation certified
Level 4 Instructor-Developer

What are the challenges relating to cathodic protection for the operators?

The interministerial decree on multi-fluids requires transporters of hazardous products to guarantee the integrity of their infrastructure, and certify the competency of their technicians. To meet these increasingly stringent business requirements, we are constantly evolving and providing support to operators.

What is the role of Energy Formation in this context?

We prepare our trainees for their certification, from

We offer customised training courses, consultancy services, diagnosis of the cathodic protection installations on your site, complex and technical measurements, local or remote support in the development of your software. Our instructors adapt your needs and your business context

Price: Contact us



Cathodic Protection Network

Discover our field of activity >





TRAINING COURSES

Complementary passive protection offer

PREPARATION FOR CERTIFICATION



Z4444

Apply the 3 types of anti-corrosion coatings and prepare for CEFRACOR Level 1 "coating installation" certification

IN-PERSON LEARNING

14 hours - 2 days

PREPARATION FOR CERTIFICATION



Z445

Preparation for CEFRACOR "coating installation" certification

IN-PERSON LEARNING

28 hours - 4 days

Z4444

APPLY THE 3 TYPES OF ANTI-CORROSION COATINGS AND PREPARE FOR CEFRACOR LEVEL 1 "COATING INSTALLATION" CERTIFICATION

DURATION: 14 hours - 2 days

TARGET AUDIENCE:

Anyone involved in applying and/or inspecting anti-corrosion coatings

PREREQUISITES:

In order to attend the training course in satisfactory conditions, the trainees must be able to recognise the materials and be aware of the general principles of prevention as well the required PPE. All these elements are addressed in training course Z432.

Z445

PREPARATION FOR THE CEFRACOR "COATING INSTALLATION" CERTIFICATION

DURATION: 28 hours - 4 days

TARGET AUDIENCE:

All companies involved in the production and inspection of anti-corrosion coatings and line managers involved in the management of employees.

PREREQUISITES:

In order to attend the training course in satisfactory conditions, the trainees must be able to recognise the materials and be aware of the general principles of prevention as well the required PPE. All these elements are addressed in training course Z432.

Objectives of the training course

- Install the passive protection of a steel network by applying the 3 types of anti-corrosion coatings and then perform a visual inspection.
- Install a passive protection according to standard NF EN ISO 21809-3 and the manufacturer's operating procedure.

Skills developed

- Install a passive protection according to standard NF EN ISO 21809-3 and the manufacturer's operating procedure.

Technical and instructional methods

- Alternating theoretical background and exchanges with practical exercises,
- Training room equipped with appropriate teaching aids,
- Computer connections (Wifi) for access to the Internet, or other "business" applications,
- Workshop equipped to pass a CEFRACOR Level 1 and Level 2 certification examination.

Objectives of the training course

- Install the passive protection of a steel network by applying the 3 types of anti-corrosion coatings and then control the quality.

Skills developed

- Carry out and check a passive protection according to standard NF EN ISO 21809-3, the manufacturer's operating procedure and GRDF requirements,
- Explain the role of passive protection in the event of an insulation fault.

Technical and instructional methods

- Alternating theoretical background and exchanges with practical exercises,
- Training room equipped with appropriate teaching aids,
- Computer connections (Wifi) for access to the Internet, or other "business" applications,
- Workshop equipped to pass a CEFRACOR Level 1 and Level 2 certification examination.

Possibility of taking the CEFRACOR "coating installation" certification examinations as an independent candidate.



We offer customised training courses, consultancy services, diagnosis of the cathodic protection installations on your site, complex and technical measurements, local or remote support - the development of your software. Our instructors adapt your needs and your business context

Price: Contact us



Cathodic Protection Network



over field of odic ection >



Providing
our expertise
in cathodic
protection
protection
installations

Energy Formation



OUR TRAINING
PACKAGE

CATHODIC PROTECTION

Discover our range of training courses
designed to slow down corrosion

Sylvain Batard

Energy Formation certified
Level 4 Instructor-Developer

What are the challenges relating to cathodic protection for the operators?

The interministerial decree on multi-fluids requires transporters of hazardous products to guarantee the integrity of their infrastructure, and certify the competency of their technicians. To meet these increasingly stringent business requirements, we are constantly evolving and providing support to operators.

What is the role of Energy Formation in this context?

We prepare our trainees for their certification, from



For further
information visit:
energyformation.grdf.fr

Liner Communication - version modified by Maxime Guinet - January 2024 - Photo credits: Hadrien Brunner

A cathodic protection network unique in Europe

900m

of underground gas
network dedicated to
cathodic protection



We offer customised training courses, consultancy services, diagnosis of the cathodic protection installations on your site, complex and technical measurements, local or remote support for the development of your software. Our instructors adapt to your needs and your business context

Price: Contact us

Training campus of Saint-Etienne de Montluc
Dedicated training facilities

Passive protection workshop

C4 (Room 41) - Cathodic Protection Lab

Cathodic Protection Network

Discover the field of cathodic protection >

Energy Formation



3 CAMPUSES
ONE TRAINING
PACKAGE

CATHODIC PROTECTION

ENERGY FORMATION

La Croix Gaudin,
44360 Saint-Étienne-de-Montluc
Phone: +33 (0)2 40 85 82 82
Email: grdf-ef-clients@grdf.fr



@EnergyFormation