

59th Annual

Underground Corrosion Short Course Program

February 25-27, 2020

Purdue University, West Lafayette, Indiana



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www.purdue.edu/conferences/corrosion

Who Should Attend

Anyone interested in the causes of corrosion and its control should attend this course. Engineers, corrosion technicians, construction foremen, and maintenance foremen will find that this program fits their needs.

Sections and Offerings

Practical Applications of Corrosion Control – This course is designed for engineers, operators, field laborers, and supervisors that want a basic understanding of the concepts of corrosion. Basic fundamentals and hands-on training will be covered. A voluntary test will be offered at the conclusion of the course.

Basic Section – This section will provide a structured course designed to assist in the preparation for the Cathodic Protection Tester Certification test. A voluntary test will be offered at conclusion of the course.

Intermediate Section – This section will discuss rectifiers, galvanic and impressed current anode systems, and both DC and AC interference. A voluntary test will be offered at the conclusion of the course.

Advanced Section – This section will present advanced techniques, materials, and design. A voluntary test will be offered at conclusion of the course.

Coatings Section – This section will address Surface preparation and coating fundamentals, inspection techniques in the field and coating mills, knowledge of proper coating selection, and hands-on field application procedures.

Internal Corrosion Section – This section will have industry experts presenting the latest information on internal corrosion and internal corrosion control.

Basic Fundamentals of Pipeline Integrity Management – This section is designed for people new to integrity or that would like a complete overview of most areas relating to integrity management. This course is structured and is meant to be taken in whole, with a competency test at the conclusion. This course is coordinated with the "Integrity Management Special Topics" course, so that if a particular class is too rudimentary for your experience level, you may choose to sit in the other section to gain more advanced knowledge.

Integrity Management Special Topics – This section covers advanced topics relating to integrity management. Topics change each year based on new industry trends, technologies, and interpretation of DOT rule-making from transmission and distribution viewpoints. This section is coordinated with "basic fundamentals of integrity management", so that similar classes of differing levels are offered at the same time.

Special Topics – This section will address current issues and problems facing the industry, and will endeavor to find solutions.

Additional Offerings

Rectifier School – Tuesday February 25th, 8:30 am - 4:00 pm. Corrosion technicians can learn about the fundamentals of troubleshooting, maintenance, and operation of rectifiers. In the class, students will be able to work physically with the equipment. There are only 30 seats so register today!

Professional Development Hours (PDH)

PDH are available for the sessions identified as such. PDH are a standardized, nationwide method of recognition for participation in approved, non-credit educational activities. Attendance at the entire session (Basic, Intermediate, Advanced, or Practical Application) is required for credit. Recordkeeping for your PDH requirements is your responsibility.

Program and Registration Information

For registration information, please contact:

Amanda Johnson, Senior Event Planner, or a **Registration Assistant** at (866) 515-0023 or confreg@purdue.edu, www.purdue.edu/conferences/corrosion
For course content information, please contact: For course content information, please contact:

Brad Malcolm, General Chairman,
(260) 241-6898 or bmalcolm@nisource.com

Once you are registered, you will receive an electronic confirmation letter with parking information, links to maps, and other information.

Parking

Parking is available in the Grant Street Parking Garage, which is across the street (east) from the Purdue Memorial Union. The daily fee is \$10, with hourly rates for lesser time.

Refunds

If registration cancellation is received 45 or more days prior to the start of the event, the refund will be 100% of the attendee's deposit;

- If registration cancellation is received less than 45 days but 31 or more days prior to the start of the event, the refund will be 50% of the attendee's deposit;
- If registration cancellation is received less than 31 days prior to the start of the event, the attendee will not receive a refund of the attendee's deposit.
- No refunds will be provided for registration cancellations or adjustments resulting in a balance of less than \$50.00

Vendor Show

The Four Points by Sheraton (1600 Cumberland Avenue, West Lafayette) is the location for the Supplier Hospitality and Information Show. The show will be held Tuesday (5:30-8:30pm) and Wednesday (5:00-7:00pm). Join a number of industry experts in a casual atmosphere to obtain the latest information on CP services and products. Food and beverages will be provided by the exhibitors. For your convenience, a shuttle bus will be provided between the Stewart Center, Four Points by Sheraton and Hilton Garden Inn. Tuesday shuttle times are 5:00-9:00pm and Wednesday shuttle times are 4:45-7:30 pm. For more information, contact Tim Bechtel at tim@dairyland.com or (517) 962-8129.

The Purdue pick-up location will be outside Stewart Center on Memorial Mall.

Preferred Lodging

You are urged to make housing reservations early, as this is a special events week in West Lafayette. We have blocks at the Hilton Garden Inn (\$103/night) and the Holiday Inn City Centre (\$129/night). The Hilton Garden Inn will provide complimentary transportation to campus upon request at the front desk in advance. When calling to make your reservation at these hotels mention the Corrosion Short Course block.

Hilton Garden Inn, West Lafayette	765-743-2100
Holiday Inn City Centre, Lafayette.....	765 423-1000
Hampton Inn and Suites.....	765-269-8000
Four Points by Sheraton, US 52 and Cumberland.....	765-463-5511

Alternative Lodging

Comfort Inn, 4701 Meijer Court	765-447-3434
Comfort Suites Hotel, 31 Frontage Road	765-447-0016
Days Inn, I-65 and State Road 26 East.....	765-446-8558
Fairfield Inn, State Road 26 East	765-449-0083
Homewood Suites, 3939 State Rd 26 East.....	765-448-9700
Quality Inn, 4221 State Road 26 East.....	765-447-3434
Towne Place Suites, 163 Frontage Road.....	765-446-8668

59th Purdue Underground Corrosion Short Course Schedule - Wednesday, February 26th, 2020

Registration begins at 7:00 a.m. in Stewart Center in the East Foyer, Main Floor | General Session is from 8:00-9:15 a.m. in Fowler Hall
(located next to the registration window in Stewart Center)

	Period 1 9:20 – 10:25	Period 2 10:35 – 11:40	Lunch 11:45 – 1:00	Period 3 1:00 – 2:00	Period 4 2:10 – 3:15	Period 5 3:25 – 4:30
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Practical Applications of Corrosion Control

Mark James, Chair
STEW 306

Introduction to Corrosion Control
Mark James - Marathon Pipeline

Coatings Instruction
Doug Klingensmith - Unconventional Solutions Inc.

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Ballroom

Coatings Hands On
Doug Klingensmith - Unconventional Solutions Inc.

CP
Greg Alexander - Southern Company Gas

CP
Greg Alexander - Southern Company Gas

Basic Section

Brent Shuler, Chair
STEW 214 ABCD

Principals of Basic Electricity
Michael Placzek, Ark Engineering

Corrosion Fundamentals
Dan Rowe, NIPSCO

PMU
Ballroom

Corrosion Control
Brent Shuler - Columbia Gas of Ohio

Fundamentals of Cathodic Protection (Part 1)
Josh Brewer, Integrity Solutions

Fundamentals of Cathodic Protection (Part 2)
Josh Brewer, Integrity Solutions;
Brent Shuler, Columbia Gas of Ohio

Intermediate Section

Patrick Elpers, Chair
STEW 214 CD

Rectifiers, Part 1
Don Olson, Integrated Rectifier Technologies Inc.

Rectifiers, Part 2
Don Olson, Integrated Rectifier Technologies Inc.

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Galvanic Anode Systems
Eric Langelund - Piping & Corrosion Specialties, Inc.

Impressed Current Anode Systems
Eric Langelund - Piping & Corrosion Specialties, Inc.

DC Interference Testing Part 1
Mike Placzek - ARK Engineering

Advanced Section

Rogelio de las Casas, Chair
STEW 214 AB

Impressed Current CP Design, Part 1
Keith Boswell, NPS

Impressed Current CP Design, Part 2
Keith Boswell, NPS

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Cathodic Protection Installation
Nathan Wood, Consultant

Deep Anode Cathodic Protection Design
Nathan Wood, Consultant

Soil Resistivity Testing for CP Design
Jennifer de las Casas, DLCCP

Pipeline Coatings

Frank Rampton, Chair
STEW 302

Successful Field Coating Applications
Scott Feuquay - SL Feuquay

Major Pipeline Coating Failures/Case Studies
Neil Pittman - Lake Superior Consulting

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Coating Inspection Techniques
Chris Buyle - SME

Coating Inspection Equipment/Calibrations
Chris Beninati - Elcometer

Hands On, rotating stations: Coating & inspection equipment
N.Pittman, C.Beninati, C. Buyle, F. Rampton

Special Topics

Ranjani Vijayakumar, Chair
STEW 202

The impact of best practice training requirements for composite installations
Tommy Bomia CS-NRI

Regulatory Status of Vapor Corrosion Inhibitor for Oil & Gas Applications
Kelly Baker - Zerust

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Performance of Specialty Reinforcing Bars in Concrete
Neal Berke - Tourney Consulting Group, LLC

Corrosion Control for Ductile Iron Pipelines
Paul Hanson - DIPRA

AC Mitigation
Tim Bechtel - Dairyland

Basic Fundamentals of Pipeline Integrity Management

Scott Lewandowski, Chair
STEW 278

HCA Identification & Tracking Intro, Threat Identification

Pre-Assessment and Tool Selection

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Tool Overview and Assessment Data Evaluation: IL results, DVCG/ACVG, and CIS

Direct Examination - Response and Repair of Anomalies and Defects

Post Assessment - P&Ms, Like and Similar, Continuous Improvement

Integrity Management Special Topics

Joe Graycraft, Chair
STEW 279

Method 1 vs. Method 2, MCAs, Active vs. Inactive threats

ECDA - deep dive, CIS, DVCG, ACVG, PCM strengths, weaknesses, issues encountered

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In-line Inspection Deep Dive - Proper Tool Selection Based on Threats

Calculating Response Times and the use of tool accuracy specifications

Defect Evaluation, RSTRENG, NDE Methods

Internal Corrosion

Jane Brown, Chair
STEW 206

Sampling Devices and Locations
Lance Witt - Sentry Equipment

Field Sampling
Jason Rine - American Innovations

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An Operators Perspective
Krista Heidersbach - Phillips 66

Dead Leg Monitoring
Jerry Brown - BCSI

Modeling Software

59th Purdue Underground Corrosion Short Course Schedule - Thursday, February 27th, 2020

	Period 6 8:30 – 9:35	Period 7 9:45 – 10:50	Break 10:45 – 11:15	Period 8 11:10 – 12:15	Period 9 12:20 – 1:30
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Practical Applications of Corrosion Control Mark James, Chair STEW 306	<i>Electrical Isolation</i> Mark Anderson, Mercer Technical Services	<i>Test Stations & Potential</i> Phil Eggen, EN Engineering	Snacks & Drinks STEW 307 & 204	<i>Rectifier Inspection & Resistivity Measurements</i> Tim Blair, Marathon Pipeline	VOLUNTARY EXAM
Basic Section Brent Shuler, Chair STEW 214ABCD	<i>Cathodic Protection Measurement Basics (Part 1)</i> Luke Harris, Integrity Solutions	<i>Cathodic Protection Measurement Basics (Part 2)</i> Mark Anderson, MTS	Snacks & Drinks STEW 307 & 204	<i>Monitoring Cathodic Protection</i> Steve Glover, Vectren	VOLUNTARY EXAM
Intermediate Section Patrick Elpers, Chair STEW 214CD	<i>Interference Testing DC, Part 2</i> Mike Placzek, ARK Engineering	<i>AC Interference, Part 1</i> Mike Baxter, Integrity Solutions	Snacks & Drinks STEW 307 & 204	<i>AC Interference, Part 2</i> Mike Baxter, Integrity Solutions	VOLUNTARY EXAM
Advanced Section Rogelio de las Casas, Chair STEW 214AB	<i>Galvanic Anode CP Design, Part 1</i> Rogelio de las Casas, DLCCP	<i>Galvanic Anode CP Design, Part 2</i> Rogelio de las Casas, DLCCP	Snacks & Drinks STEW 307 & 204	<i>Impressed Current CP Design Exercise</i> Rogelio de las Casas, DLCCP	VOLUNTARY EXAM
Pipeline Coatings Frank Rampton, Chair STEW 302	<i>Casing Remediation and Case Studies using Wax Filler</i> Frank Rampton - Trenton Corporation	<i>(1) Pipeline Coatings & 192/195</i> Chuck Weindorf, IURC; Bill Lowry, PHMSA <i>(2) Pipeline Coating Failures & Roundtable</i> Chuck Weindorf, IURC; S. Hall	Snacks & Drinks STEW 307 & 204	<i>FBE, Liquid Epoxies & Patch Sticks on Pipelines</i> Steve Hall - 3M	PHMSA Roundtable
Special Topics Ranjani Vijayakumar, Chair STEW 202	<i>Cathodic Protection System Synergies with Vapor Corrosion Inhibitors for Above Ground Storage Tanks and Pipe-Casings</i> Sujay Math - NTIC	<i>Understanding AC Interference & Mitigation Solutions</i> Clay Brelsford - Bass Engineering	Snacks & Drinks STEW 307 & 204	<i>AC Interference Testing and Mitigation</i> Dale Lindemuth - Corpro	PHMSA Roundtable
Basic Fundamentals of Pipeline Integrity Management Scott Lewandowski, Chair STEW 278	<i>Risk Evaluation - New Requirements From PHMSA</i>	<i>Record Keeping and Data Management - Performance Metrics</i>	Snacks & Drinks STEW 307 & 204	<i>Code Introduction, Incorporated By Reference Documents, and Reporting Requirements</i>	PHMSA Roundtable
Integrity Management Special Topics Joe Graycraft, Chair STEW 279	<i>Utilization of GIS in Assessment Data Validation and Capture</i>	<i>Evaluating the Effectiveness of P&M Measures</i>	Snacks & Drinks STEW 307 & 204	<i>Mega Rule Phase 1 Impact</i>	PHMSA Roundtable
Internal Corrosion Jane Brown, Chair STEW 206	<i>Designing a Monitoring System</i>	<i>Types of Monitoring and How to Choose</i>	Snacks & Drinks STEW 307 & 204	<i>MIC Testing</i> Jason Rine - American Innovations	PHMSA Roundtable

Short-Course Registration Fee

Attendee registration fee is \$150, Attendee with Rectifier Course fee is \$275, and NACE is \$99 through January 31, 2020. After that, a late fee of \$25 will be added. The luncheon on Wednesday is included with registration.

Fitzgerald Award

The Fitzgerald Award is the highest honor a Purdue Underground Corrosion Short Course student can receive. It has been awarded to a deserving student since 2004. This award is not given out every year, as some years no student is able to meet the criteria.

John Fitzgerald III, the award's namesake, was a 1955 graduate of Yale University, professional engineer, NACE Corrosion Specialist, and was involved with corrosion work since 1959. John was a Air Force Veteran, NACE International Fellow, authored over 75 technical papers, and served as NACE International president from 1990 to 1991.

John passed away in 2018. At the short course he was a teacher, chairman, advisor, mentor, and for those of us lucky enough to have known him, he was a friend. His imprint on this course, this industry, and his colleagues, is nothing short of extraordinary. He is profoundly missed.

Pierce Award

The Pierce Award is an honor presented to a committee member or an individual that contributes to and adds value to the Purdue Underground Corrosion Short Course. 2013 was its inaugural year.

Jay Pierce began with the Purdue Underground Corrosion Short Course in 1980. He chaired the Power and Communications Section from 1985 and served 7 years as General Chairman. Jay is retired from the University but continues to assist the course committee as an advisor.

Registration

Registration will be available online only and no registration forms will be available to mail in. Register today online at www.purdue.edu/conferences/corrosion. If you have any questions regarding registration or need any assistance please call our toll free registration line 1-866-515-0023, Monday – Friday 8:00 am – 4:30 pm.

If you plan to call in and register over the phone for the short course, please be ready to select which section you plan on attending. Descriptions are on page two of the brochure.

- Practical Applications of Corrosion Control
- Basic Section
- Intermediate Section
- Advanced Section
- Coatings Section
- Internal Corrosion Section
- Basic Fundamentals of Pipeline Integrity Management
- Integrity Management Special Topics
- Special Topics

Below are the registration fees for the 2020 course. You have until February 5th to cancel and receive a refund.

Attendee Registration by January 31: \$150

Attendee Registration after January 31: \$175

Attendee with Rectifier Course Registration: \$275 - Full

NACE Corrosion Technician Review: \$99

Purdue is committed to making its programs accessible to individuals with disabilities. If you require an accommodation or special assistance for this program due to a disability, please contact us at (866) 515-0023.

Register today at www.purdue.edu/conferences/corrosion

NOTE: Purdue University, Underground Corrosion Short Course, the planning committee, and the committee officers are not responsible for statements made by the speakers.

Future Dates

February 23-25, 2021

February 22-24, 2022

February 28 - March 2, 2023

February 27-29, 2024

Register Online at

www.purdue.edu/conferences/corrosion

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Stewart Center, Room 116

128 Memorial Mall

West Lafayette, IN 47907-2034

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