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Rogelio de las Casas

American Citizen.

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Certifications

National Association of Corrosion Engineers International (NACE) – Cathodic Protection Specialist (NACE CP level IV) #6291, 2000

National Association of Corrosion Engineers International (NACE) – Senior Corrosion Technologist #6291, 1999

CP Interference Course, 2007

Professional Development

1989: Corrosion and Protection against corrosion of metals (four months).

(1989-1990): Anticorrosive paint (by correspondence).

1993: Autocad Systems.

02/ 2007: Short corrosion course, Perdue University, Indiana, USA, a section of advanced cathodic protection design; obtained high score award for perfect score results at the final test.

06/ 2007: NACE CP interference course. This NACE Advance course includes DC, AC and Telluric Interference studies.

02/ 2008: Short corrosion course, Purdue University, Indiana, USA, a section of rectifier maintenance and troubleshooting.

02/ 2008 -02/ 2023, Teaching cathodic protection with sacrificial anodes in the CP advance section in Purdue University short corrosion course, Indiana USA.

02/2014, I have been promoted to Chairman for the CP Advance Corrosion Course for the Purdue University Short Corrosion Course, beginning on 02/2015.

02/2010, presenting a two hours conference on the special topics of the Purdue University short corrosion course titled: "Earth Potential equations and applications," Indiana, USA.

02/2011, presenting a conference related to AC interference affecting CP polarization, case history, on new underground pipeline, at Purdue University, Indiana,

03/ 2008: Presenting a paper at NACE International Corrosion Congress in New Orleans.

03/ 2009: Presenting two papers at NACE International Corrosion Congress in Atlanta, Georgia, USA. One of the papers was dedicated to DC Dynamic Interference detection & design and implementation of a DC Electrical Drainage Switch.

04/ 2009: Libertyville Rectifier School.

03/2010: Presenting two papers at NACE International Corrosion Congress in San Antonio, Texas, USA.

03/2011: Presenting a paper at NACE International Corrosion Congress in Houston Texas.

10/2011: Presenting a conference related to Earth Potentials calculation for CP design and DC interference at the NACE International Corrosion Technology Week 2011 in Las Vegas, Nevada.

03/2012: Presenting a paper related to a new equation for resistance calculation of single vertical electrodes, where the top of the anodes is not at grade, at NACE International Corrosion Congress in Salt Lake City.

03/2014: Presenting a paper related to a new equation for the resistance calculation of multiple vertical electrodes, with variable length and variable distance from the top of the anode to surface of the ground, at NACE International Corrosion Congress in San Antonio Texas.

03/2014: Presenting a special topics conference on the AC-DC NACE group regarding the different ways to simulate and calculate the Longitudinal Electric Field under the presence of power lines that parallel or are collocated with underground pipelines. at NACE International Corrosion Congress in San Antonio Texas.

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03/2015: Presenting a paper at NACE 2015, related to the simulation of the cathodic protection system, coupling the attenuation equations for pipeline and the potential in the ground due to groundbeds.

04/2014: I was approved to teach cathodic protection for CP-1, CP-2, CP-3, and CP-4, as NACE Certified Instructor, in English and Spanish.

02/2014:

As NACE CP-1, CP-2, CP-3 and CP-4 instructor, I have taught NACE course in multiple occasions since July of 2014.

International Organizations:

11/97: NACE MEMBER Number 140821

Summary of Experience

Twenty seven (30) years (1988-1991 and 1997-2024) of extensive experience in direct and practical application of pipeline, offshore structures, and aboveground tanks corrosion control, cathodic protection; including corrosion engineering analysis, installation and troubleshooting of cathodic protection systems, computerized close interval potential survey, direct current voltage survey, pipeline current map, telluric current monitoring and measurement, stray DC interference testing, installation and commissioning of AC mitigation systems for pipelines, cathodic protection design and simulation of existing and new cathodic protection systems, strong knowledge and use of mathematics in cathodic protection design and simulation, preparation of cathodic protection document for bid. Also participating in the installation, inspection, and commissioning of cathodic protection systems.

Engineering Operation Manager and Principal Consultant at DeLasCasas CP, LLC since August 2016.

NACE Instructor for CP courses since March 2014. Courses CP-1, CP-2, CP-3 & CP-4, Basic Corrosion & CP-2 Maritime.

Worked previously for:

Worked for RUST, Michigan, since 2012 to 2016, having the position of Vice-President, in charge of the field project, engineering projects, training of new and experienced techs and engineers.

Worked for EN Engineering, Woodridge Illinois, from 2005 to 2012, having the following positions: Senior Corrosion Engineer, Project Engineer, Senior Project Engineer, Senior Technical Lead, and Project Manager, in charge of cathodic protection design, AC mitigation, installation, and commissioning.

Mears CP group, Rosebush Michigan, from 2003 to 2005. CP surveys: CIS, DCVG, PCM, ACVG, interference testing.

ENOSA, Caracas Venezuela, from 1997 to 2003. CP designing and testing.

Computational skills:

Microsoft packages: Word, Excel, PowerPoint.

Mathcad version 15, Prime series (They are used for design and simulation of cathodic protection systems)

Up to 1996 I lived and worked in Cuba.

From 1987-1992

As CP design engineer for seashore structures, material selection for condensers, heat exchanges where the cooling system was sea water.

MAIN JOBS:

Venezuela: 1997- 2003. I worked as cathodic protection designer.

- *PTO-JOSE Ø 42" (62 Km) oil pipeline, survey and, the design of Cathodic protection Impressed Current System using vertical groundbeds with 2" X 60" high silicon chromium cast Iron.*
- *Neveri-CIPPA Ø 118" (28.5 Km) aqueduct, the design of Cathodic protection Impressed Current System using vertical groundbeds with 2" X 60" high silicon chromium cast Iron, and sacrificial groundbed with magnesium anodes.*
- *LAGOVEN-MOBIL CERRO NEGRO-JOSE PIPELINE, field survey, and design of Cathodic protection Impressed Current System using vertical groundbeds with 2" X 60" high silicon chromium cast Iron.*
- *LAGOVEN Catia La Mar, field survey, and design of Cathodic protection Impressed Current System using vertical groundbed with 2" X 60" high silicon chromium cast Iron for above ground tank bottom, and sacrificial groundbed with magnesium anodes for a gasoline pipeline Ø 8".*
- *El Furrial- **Wilpro-Energy Services** Gas Injection Project, Maturin, survey and design, and inspection of Cathodic protection Impressed Current System using deep groundbeds (60 m of depth) with Lida's M.M.O anodes S.T. 1.6/50, and S.T. 1.6/100, for 30" (30 Km.), 14" (10 Km.), and 24" (3 Km.) gas pipelines, and gas net pipeline in two gas compressor plant. The inspection included two swingtest using current interrupter to measure the pipe to soil polarized potential.*
- *Taguaza-Taguacita Ø 118" (20 Km) aqueduct, survey and design, of Cathodic protection Impressed Current System using groundbeds with Lida's M.M.O. Anodes S.T. 2.5/100. The survey included three swingtest using Universal portable Rectifier, copper bar, and current interrupter to determine the actual current requirement for cathodic protection.*
- *Studying of corrosion and cathodic protection problem in Gasoline distribution stations for **BP**, around Venezuela (188 gasoline stations).*
- *The basic design for Cathodic protection system of aboveground storage tank bottoms for **Fluordaniel** in C.O.B and P.T.O., Ameriven (Joint Venture between PDVSA and **Conoco Philips-Chevron-Texaco**) Project in Anzoátegui State, Venezuela.*
- *Cathodic protection design for piles in seawater, using impressed current system, in Puerto Mar, Margarita, Nueva Esparta, Venezuela.*
- *Design of Cathodic protection System of pipelines In Sincor Upstream Project **Total**, Anzoátegui State, Venezuela. Also I have participated in several field surveys to improve this cathodic protection design.*
- *Design of Cathodic protection System of Aboveground Storage Tanks in Santa Barbara PDVSA Oil Plant in Anzoátegui State.*
- *Basic engineering using sacrificial anodes (zinc anodes exterior tanks bottom, and aluminum anodes for the interior surface in contact with salt water) CPS of Saltwater injection plant tanks. In Leona 13, Anzoátegui state.*
- *Cathodic protection design for underground pipelines at the Dacion Field development, **Lasmo** Company, San Tome, Anzoátegui State, Venezuela.*
- *Field survey and Basic Engineering in La Concepción Oil field for **Perez Compans Oil Company** in Maracaibo City, Zulia State.*
- *I have participated in several field inspection to find and solve design and operation troubles in oil and petrochemical plants in cathodic protection systems, in example: Petrozuata-**Conoco** Jose pump Station, Petrozuata San Diego De Cabrutica Pump Station, Pequiven S. A. Station, Sincor Main Pipeline Station in San Diego de Cabrutica.*
- *Design and Installation of the Cathodic Protection System for buried pipelines in Petrozuata-**Conoco** Jose and San Diego de Cabrutica Pump Stations, including Cathodic Protection System construction and commissioning.*
- *Field Surveys, including resistivities, pH, and native potential measurements, and design the cathodic protection system for Hamaca-**Chevron-Texaco** Upstream Project, with anodeflex system.*

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- *The design of Cathodic Protection System with aluminum sacrificial anodes for Sincor Coke and Sulfur Handling Project, offshore piles.*
- *Cathodic protection survey for the SAAM pipeline, between Carenero and Guatire, including natural potentials, On-Off potentials, using four synchronizable current interrupters, to test four cathodic protection stations, soil resistivity measurements for new groundbeds, detection of existing cathodic protection cables and groundbeds, and a final report with all information, conclusions and recommendations.*
- *Cathodic protection survey for the Fertinitro Plant, including natural potentials, On-Off potentials, to test fifteen Cathodic protection Stations, isolation measurements at flange isolation kits and monolithic joints, a final report with all information, conclusions, and recommendations.*
- *Cathodic protection design for an underground pipeline with the impressed current system and underground storage tank with magnesium sacrificial anodes, for Nueva Estacion de Valvulas Tocoa, Electricidad de Caracas, Caracas, Venezuela.*
- **Note:** *As a reference to my job in Venezuela you can contact to Nicolas Nouel, NACE CPS 6187. URB. CAURIMARE, CALLE A-2, QTA ZAFARRANCHO, CARACAS, VENEZUELA, TEL. 1-57 2 9860386/ 9850418 (TEL-FAX). E-mail address: enosa@telcel.net.ve*

USA:

Mears Group: 2003- 2005.

- *GPS Survey for Northern Natural Gas pipelines in Minnesota. Including training in GPS techniques and data processing.*
- *GPS and CIS On/Off Survey for Northern Natural Gas Pipelines in Minnesota, 40 mi. Including training in CIS and data processing.*
- *GPS, location, and CIS On/Off survey for Cinergy Gas pipelines in Ohio and Kentucky, 260 mi. Including data processing.*
- *GPS, location and CIS ON/Off survey for Williams Gas Pipelines in Snohomish, Seattle, Washington. Including data processing.*
- *CIS On/Off survey and Native potential survey for William Gas pipelines in South Carolina, North Carolina, and Georgia.*
- *Interfering and Influence current Tests for underground pipelines, CIS On and Off Survey, for Transco Pipeline, Virginia.*
- *PCM, CIS for Norwest Natural Gas, Oregon. Including training in PCM.*
- *PCM, GPS, CIS, DCVG, interference and stray current test, Questar Gas pipeline, Salt Lake City, Utah.*
- *Note: You can contact Kevin Northon, (Kevin.Northon@mears.net), he was my foreman for more than a year.*

EN Engineering: 08/2005 -11/2012

- *Nicor Gas, Illinois: CIS, DCVG, PCM surveys for gas pipelines. Gas storage field CP assessment, using GPS synchronized interrupters, to determine the level of CP current per rectifier per well and gathering pipe system. 2005-2006*
- *Nicor Gas, Illinois CP design to enhance the CP system, also in charge of the installation of the CP systems, for the following Storage Gas fields: Lexington and Bloomington in Central Illinois. 2006*
- *Supervision and training of personnel to perform CIS-DCVG and PCM surveys for PEMEX (Mexico Oil Company) during several visits to Mexico, in 2006, between January and July.*
- *Nicor Gas, Illinois, the design of CP for Observation wells in the Troy Grove Gas Storage Field. Design and installation of several CP systems for gas transmission lines. 2006*
- *Nicor Gas, Illinois, several minor CP system designs during the last four years, for cathodic protection of gas stations, transmission lines, and gas distribution lines in the area of northwest Chicago and the Suburbs. 2005-2009*
- *Valero: CIS, DCVG for 8" oil line. CP system adjustment of this line. Design and installation of a horizontal Anodeflex anode system for five pipelines in a congested area in a refinery southwest of Chicago, City of Calumet. 2006-2007*

- *Citgo: Several Tank Farms assessment CP assessments, in some cases doing the field testing and report, and in other cases just the assessment of the data gathered by others. 2007-2009*
- *Citgo: CP system design and installation for a water canal wall in Cicero City, southwest of Chicago. 2007-2009*
- *West Shore Oil pipeline: Several CIS, DCVG, and PCM surveys of oil pipelines. 2007-2008*
- *West Shore Oil pipeline, the design of a distribute anode system, with horizontal anodes for a one (1) mile section of four (4) existing pipelines, in Lemont, Illinois. 2009*
- *Bonneville Power Agency: several reports of corrosion assessment of electrical substation ground grid systems.2006- 2007*
- *Stray current assessment and design of CP system for grounding system corrosion protection against DC stray current at the Alcoa Electrical Substation in Ferndale, Wa*
- *Dupage Water Commission: Corrosion assessment of a water main with diameters between 30" and 48". The design of three CP systems to be installed this year. 20072009*
- *Corrosion assessment of other different water main and water pump station with the objective of design CP systems.*
- *The stray current analysis in a 90" water main due to DC train system in Chicago Area. Design, installation, and commissioning of a Reverse Current Drainage Switch, in Chicago Illinois*
- *USG: Design and installation of CP systems, including monitoring components for a new 14 miles, 6" gas line in Washingtonville, Pennsylvania. I was in charge of the installation inspection and the commissioning of the two cathodic protection systems. 2007-2008*
WPS: Design of CP impressed current systems and sacrificial anode systems for new gas lines in Wisconsin for Wisconsin Power Services. 2007
National Fuel, 75 miles of 24" pipeline, design, installation and commissioning of the cathodic protection systems.2007-2009
- *Enbridge, the design of cathodic protection systems for 138 miles of 20" and 42" pipelines, call the Southern Access Project, in West Illinois, 45 miles of 20", the Manhattan – Streator lateral, and the Manhattan Station.*
- *Inspection of ACVG for a new Enbridge Pipeline, 2010, North Dakota-Minnesota.*
- *Regency Gas, a cathodic protection system for 120 miles of 36" and 42" pipelines, these CP systems are in execution now in Louisiana. 2009*
- *Enbridge, design, installation and commissioning of cathodic protection systems for 45 miles of 20" pipeline, call the Manhattan – Streator lateral, 2009-2010*
- *Enbridge, the design of cathodic protection systems for the Manhattan Station 2009-2010.*
- *Valero, in charge of CP testing, design and troubleshooting for the Valero facilities in Illinois.*
- *Enbridge, the design of 25 cathodic protection system for 225 miles of multiple pipelines in a common ROW, for the 6B-R line, in Michigan.*
- *The stray current analysis in a Kinder Morgan 8" fuel line due to DC train system in Chicago Area. Design, installation, and commissioning of a Reverse Current Drainage Switch, in Chicago Illinois*
- *The stray current analysis in a Peoples Gas 12" fuel line due to DC train system in Chicago Area. Design of a Reverse Current Drainage Switch, in Chicago Illinois*
- *I had six engineers, two technicians and two draftsmen working under my supervision in CP, AC mitigation design and troubleshooting activities for several clients at EN Engineering.*

Reliable Underground Service Technicians (R.U.S.T): 11/2012 –07-2016

- *Field testing, installation inspection, and commissioning of several AC mitigation systems for the following clients:*
 - *Vectren in Indiana- 2012, 2013, material selection, field activities before design, grounding systems design, inspection installation*

- - *GRE in Minnesota-2013-2014, field activities before design, material selection, installation, and commissioning.*
 - *NNG in Texas-2013, installation of grounding mats for TS, in AC powerline corridors.*
 - *Magellan Pipelines-2014-2016, field activities before design, design of the grounding systems, material selection and AC mitigation systems installation for four different pipelines in the states of Kansas, Oklahoma, and Arkansas.*
 - *Enbridge-2013-216, field testing before installation & material specifications, consultant services for client contractors during installation. For pipelines in Wisconsin, Illinois, Indiana, Michigan and New York.*
 - *NIPSCO, enhancement of an AC mitigation system: field testing before installation, design, material selection, installation and commissioning of the AC mitigation systems.*
- *Cathodic protection design and consulting work for several corrosion contractors in Mexico, Peru, Ecuador, and USA including the design of cathodic protection systems with multiple pipelines in the same ROW.*
- *CP design for Magellan Pipelines*
- *Four CP design installation and commissioning for NIPSCO: shallow vertical, deep wells, linear and distributed anode systems in several locations in Northern Indiana.*
- *CIS surveys for 39 miles of Magellan pipeline in Oklahoma*
- *CIS survey for 8 miles of Enterprise pipelines in Cushing Oklahoma*
- *Pipeline installation inspection related to cathodic protection systems for Enbridge between south Illinois and Oklahoma.*
- *HCA (High Concentrated Areas) project for NIPSCO in Northern Indiana, supervising the following surveys for 26 miles of underground pipelines: CIS, DCVG, PCM and GPS and Data Processing. Preparing the complete survey reports with conclusions and recommendations.*
- *200-miles CIS survey for Dominion in Ohio, supervising the CIS survey, data processing, preparing a complete report with conclusions and recommendations.*
- *Supervising the troubleshooting of several gas distribution lines for NIPSCO in different regions in the north of Indiana.*
- *Supervising several CIS-PCM surveys for Magellan LP in Oklahoma and Arkansas.*
- *The design of cathodic protection systems for Magellan LP in Arkansas. Field data acquisition/grounding system design for several AC mitigation collocation areas for Enbridge in Wisconsin and Indiana. Including CP attenuation simulation for the existing underground pipelines.*
- *Cathodic Protection studies, design and DC interference mitigation projects for Andes Petroleum and PetroAmazonas in Ecuador, with a partnership with Tectotal.*
- *Supervising CP components installation for two Magellan's pipelines, during a year in Arkansas: Little Rock and Fort Smith Connectors.*
- *CP inspection for CP components installation for Magellan pipelines in Aurora, CO, March-April 2016*
- *CP CIS-ACVG-DCVG survey for Enbridge Pipelines, Missouri-Kansas-Oklahoma for line 59, May 2016*
- *Supervising DCVG survey for Magellan's Pipeline in Arkansas, 40- miles of new pipeline. Calculating DCVG anomaly categorization.*
- *Inspecting and commissioning CP deep wells installation for Magellan, Arkansas.*
- *Telluric interference troubleshooting for 304 Km of a mineduct in Antamina, Peru.*
- *AC interference mitigation field testing for Enbridge's Line 10-Buffalo, NY*

DeLasCasas CP 08-2016 to present, Engineering Operation Manager and Principal Consultant at DeLasCasas CP, LLC.

Providing consultancy, design, and simulation services in the field of Cathodic protection, DC Interference and AC mitigation field services.

Main clients: Kinder Morgan gas division NGPL, Praxair, Enbridge, NIPSCO and DuPage Water Commission, in USA.

- *Kinder Morgan*
 - *Design, field testing and inspection of several project for Kinder Morgan Gas division NGPL 2017-2023*
 - *CP desing, field testing, AC mitigation projects for Horizon, Volo lines, Crawford pipeline system, Iowa Amarillo system and Howard pipeline system, Gas Storage fields.*
- *Enbridge*
 - *Field testing, and commissioning of AC mitigation and DC Interference projects for Enbridge 2016-2023:*
 - *New York line 10 AC mitigation, field testing, grounding design and commissioning.*
 - *Line 6B replacement, AC mitigation field testing, grounding design and commissioning, Indiana-Illinois.*
 - *Line 14, 64 and 6A, AC mitigation, field testing, grounding design and commissioning, Indiana-Illinois.*
 - *Line 13, AC mitigation, field testing, grounding deisng and commissioning, Illinois.*
 - *Line Vector, AC mitigation, field testing.*
 - *DC interference testing Cushing Terminal*
 - *DC interference testing for lines 55 and 59 with several foreign lines in the Cushing area.*
 - *DC interference testings Line 41, at Deshler, NE and Missouri*
 - *Line 40 AC mitigation field testing, Montana to Casper-WY*
 - *Line 41 AC mitigation field testing, Casper-Wy to Hartford-II.*
 - *Line 63 AC mitigation field testing, south Illinois.*
 - *CP design drawings assistance for the Enbridge line 17 in Toledo, MI*
 - *ACM design drawings assistance for the Enbridge lines 6A & 64, Illinois-Indiana.*
 - *Design calculations for the AC mitigation grounding systems for lines 6A & 64, Illinois & Indiana, based on existing simulation report.*
 - *Design calculations for the AC mitigation grounding systems for line 10 in New York, based on existing simulation report.*
 - *CP design, calculations and installation drawings for the Seaway line in Enbridge Cushing Terminal.*
 - *CP design for Enbridge L-78 CP improvement at crossing with foreign lines MP 66.6.*
 - *AC mitigation grounding design for L-78, MP 67.7*
 - *IR test stations calibration for L-78*
- *Praxair*
 - *CP design for Praxair Burns Harbor plant cooling system expansion.*
 - *CP field testing to detect short casings, several pipeline system, Indiana.*
 - *CP testing to improve and design CP system for several pipelines in Indiana.*
- *NIPSCO*
 - *CP design for gas line servicing Arcelor Mittal, East Chicago, IN.*
 - *DC reverse current switches field study, simulation and design for locations SS-07 and SS-09, West Indiana.*
- *Tallgrass*

- - *DC and AC interference training for Tallgrass employees, for one week in Casper WY.*
 - *DC field testing for the REX line from North Colorado to Cheyene, WY.*
 - *Field testing and CP design for two locations for the REX line in Cheyene, WY.*
- *DuPage Water Commission (DWC)*
 - *DC Interference testing, mitigation design and commissioning of a sacrificial anode system to mitigate DC interference in a 72-in water main.*
 - *CP design using sacrificial anode system for a 72-in transmission line.*
 - *In charge of annual survey for the entire DWC pipeline system.*

Additional skills:

- I have developed several Mathcad calculations sheets to simulate CP design and troubleshooting, and AC mitigation of fault currents.
- I have a high knowledge of the mathematic and physic fundamentals that apply to cathodic protection, dc and ac interference.
- I speak and write very well in Spanish and English.
- I am NACE CP Specialist IV.
- Bachelor of Science in Physics.
- NACE Instructor for levels: CP-I, CP-II, CP-III and CP-IV, CP-II Maritime and Basic Corrosion.
- I have written a book about the fundamentals of potential theory in application for cathodic protection and DC interference, this book was released by NACE in 2021.