C. Sean Brossia, PhD

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Expert Witness CV | Corrosion, Materials Degradation, Mechanical Integrity, RBI, Reliability, and Industrial Equipment Failures

EXPERT FOCUS

Dr. Sean Brossia is a materials, corrosion, reliability, and mechanical integrity expert with more than 30 years of experience evaluating industrial equipment performance, degradation mechanisms, inspection practices, material selection, process reliability, and asset integrity programs. He supports attorneys in matters involving corrosion damage, materials degradation, equipment failures, inspection adequacy, risk-based inspection, mechanical integrity, reliability practices, and standard-of-care issues across refinery, chemical, pharmaceutical, paper, pipeline, power, and industrial manufacturing environments.

EXPERT WITNESS EXPERIENCE & LITIGATION READINESS

Area	Summary
Testimony experience	Previously testified and has been deposed.
Exclusion history	Opinions have never been excluded.
Plaintiff / defense work	Experience supporting both plaintiff and defense matters, with more work performed for defense clients.
Communication style	Experienced at explaining complex technical topics using practical examples, common experience, and common-sense terms suitable for attorneys, judges, and juries.
Conflict and confidentiality	Conducts conflict-of-interest assessment before engagement; understands confidentiality, attorney work product, and document control expectations.
Opinion basis	Opinions rely on available data, physical evidence, operating history, inspection records, industry standards, and recognized engineering practices.
Deadline performance	Strong track record of meeting case deadlines and supporting litigation schedules.
Current rates	Technical review, study of materials, analysis, and opinion development: $300/hr. Deposition and testimony: $400/hr.

REPRESENTATIVE EXPERT / TECHNICAL OPINION AREAS

- Corrosion causation, corrosion mechanism identification, materials degradation, and failure analysis support.
- Inspection program adequacy, mechanical integrity practices, RBI implementation, fixed equipment reliability, and RAGAGEP alignment.
- Material selection and suitability for service involving metals, coatings, linings, polymers, process chemistry, water treatment, and environmental exposure.
- Piping, pressure vessels, tanks, heat exchangers, boilers, cooling water systems, pipelines, structural assets, coatings, and process equipment.
- Root cause analysis, FMEA, MTBF/MTTR, predictive maintenance, corrosion monitoring, IIoT-enabled sensing, and condition-based monitoring.
- Industrial disputes involving refineries, chemical plants, manufacturing facilities, pipelines, tank farms, terminals, and utility/process water systems.

TECHNICAL QUALIFICATIONS & STANDARDS EXPERIENCE

- API, ASME, ASTM, AMPP/NACE, NFPA, OSHA, EPA, PHMSA, PIP, RAGAGEP, and mechanical integrity-related standards and practices.
- Risk-Based Inspection (RBI), Root Cause Analysis (RCA), FMEA, Fitness-for-Service concepts, corrosion loop / damage mechanism review, integrity operating windows, and inspection planning.
- Corrosion and materials expertise covering pitting, cracking, MIC, coating/lining damage, pipeline corrosion, cathodic/anodic protection, chemical inhibition, and corrosion monitoring technologies.

- Asset reliability and mechanical integrity leadership across chemical, pharmaceutical, fiber, paper, pipeline, tank farm, and industrial manufacturing environments.
- Over 80 publications and book chapters; more than six patents on corrosion monitoring and sensing technologies, with additional patents pending; NACE/AMPP Fellow.

PROFESSIONAL EXPERIENCE

Vulcan Integrity **04/2026 - Present**

Founder and Principal

- Founded an independent consulting practice focused on corrosion engineering, materials selection, asset integrity, mechanical integrity, RBI, inspection support, reliability, failure analysis, expert witness services, and technical training.
- Provides litigation support and expert witness services for corrosion, materials degradation, inspection adequacy, standard-of-care, equipment failure, and industrial reliability matters.
- Develops client-facing technical assessments, integrity tools, intake processes, and engineering deliverables to support defensible decision-making for industrial assets and disputed technical issues.
- Supports clients in translating complex corrosion, materials, and reliability issues into clear technical recommendations, reports, and risk-based actions.

Siegfried USA **02/2025 - 04/2026**

Director - Engineering and Maintenance

- Directed engineering and maintenance functions for chemical and fiber manufacturing assets, including reliability improvement, capital planning, mechanical integrity support, and compliance with API, ASME, PHMSA, PIP, RAGAGEP, and other industry practices.
- Managed and expanded an $11M annual capital engineering budget while supporting turnarounds, outages, process optimization, and strategic capacity improvements.
- Led a 17-person engineering and maintenance team; implemented MTBF/MTTR performance metrics and data-driven RCA practices that contributed to approximately $1.5M in annual maintenance cost savings.
- Deployed IIoT and smart sensing technologies, including corrosion, dust, and lubrication monitoring, to improve asset performance, uptime, and maintenance decision-making.

Kimberly-Clark **03/2022 - 02/2025**

Engineering Manager

- Managed engineering programs and capital planning while aligning technical execution with business objectives, safety, reliability, and operational performance.
- Implemented data-driven decision-making and RCA methods, achieving approximately $1.5M in annual maintenance savings.
- Directed corrosion monitoring and mitigation programs for tissue machines and structural assets to enhance reliability and extend asset life.
- Led deployment of smart monitoring systems for dust, lubrication, and corrosion to improve equipment effectiveness and operational efficiency.

INVISTA S.a.r.l. **06/2015 - 03/2022**

Corporate Materials Engineer; Reliability and Engineering Manager

- Provided enterprise-wide materials, corrosion, fixed equipment, and reliability engineering support for chemical and fiber plants, including API, NFPA, EPA, OSHA, ASME, PHMSA, PIP, RAGAGEP, turnaround, outage, and process modification support.
- Led corrosion management programs involving pipeline integrity, fitness-for-service assessments, corrosion monitoring and mitigation, cathodic/anodic protection, chemical inhibition, and materials selection.
- Developed and implemented RBI strategies, RCA, and FMEA methodologies to improve reliability, extend equipment life, and support mechanical integrity decision-making.
- Led a multi-site team of reliability engineers and inspectors; transformed inspection and repair practices using Lean principles, saving approximately $8M in unnecessary inspections, repairs, and unplanned turnaround delays.
- Contributed to more than $10M in reduced production losses and $15M in capital and operational savings through optimized materials selection, corrosion control, and maintenance practices.

Argus Tech Inc. **08/2014 - 06/2015**

Sr. Principal Engineer / Managing Director / Founder

- Founded and led a technical consulting and monitoring technology company focused on asset integrity, reliability, corrosion monitoring, and industrial sensing.
- Conducted root cause failure investigations for underground natural gas and liquid pipelines and storage tanks, producing actionable technical findings to improve safety and reliability.

- Designed and launched wireless corrosion and industrial monitoring systems with iOS-based data acquisition and visualization for real-time asset condition assessment.

DYCE **06/2013 - 08/2014**

Sr. Principal Engineer / Sr. Vice President

- Led technical and business operations for corrosion, integrity management, and reliability consulting services.
- Partnered with clients to develop corrosion and integrity management programs for pipelines, gas processing facilities, terminals, and sulfur recovery systems.
- Provided senior-level engineering direction to support asset reliability, safety, regulatory compliance, and client decision-making.

Materials and Corrosion Technology Center, DNV-GL **05/2005 - 05/2013**

Director / Sr. Principal Engineer

- Led a multidisciplinary technology center focused on materials, corrosion, pipeline integrity, tank integrity, coating evaluation, and applied asset integrity research.
- Developed an instrumented integrity operating window system for a major oil and gas refinery to quantify reliability impacts during opportunistic crude processing.
- Designed and implemented integrity management systems for above-ground and below-ground storage tank farms, using field data and laboratory investigations to validate technical conclusions.
- Directed direct assessment and pigging-related research to evaluate corrosion and integrity risks in natural gas and liquid pipelines.

Southwest Research Institute **03/1998 - 05/2005**

Manager / Sr. Research Engineer / Research Engineer

- Founded and developed a corrosion and materials research group, securing external funding and building a self-sufficient team of engineers, technicians, mechanics, and administrative staff.
- Conducted advanced materials and corrosion research that supported commercially available corrosion and thermodynamic chemistry simulation software.
- Developed methodologies for detecting coating damage and disbondment adopted by aerospace and pipeline industries.
- Designed corrosion monitoring and inhibition systems for U.S. Marine Corps ground combat vehicles.

Armco Specialty Flat Rolled Steels **01/1997 - 03/1998**

Engineer

- Developed stainless steel alloys with enhanced corrosion resistance and supported materials selection and performance evaluations for industrial applications.
- Scaled materials development from laboratory testing to pilot plant production and validated material performance through testing and analysis.

PROFESSIONAL ACTIVITIES, PUBLICATIONS, PATENTS, AND EDUCATION

- Active member of AMPP (formerly NACE International), ASTM International, and TMS, including committee assignments and symposium roles since 1992.
- NACE/AMPP Fellow.
- Over 80 publications and book chapters; more than six patents on corrosion monitoring and sensing technologies, with additional patents pending.
- Ph.D., Materials Science and Engineering, University of Virginia, May 1997.
- M.S., Materials Science and Engineering, University of Virginia, May 1994.
- B.S., Materials Engineering, University of Wisconsin - Milwaukee, May 1992.