



## ESWL<sup>©</sup> Consulting Expertise Services Welding Engineer & Metallurgist Expert

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**EMILE SEVER WILKE LAYER**  
Curriculum Vitae



### PROFESSIONAL SUMMARY

ESWL<sup>©</sup>, 30 Years Expertise of Worldwide Projects, Marine Loading Systems for liquefied natural Gas (LNG) and others liquid products (Oil, LPG, Suffer liquid ...) Weld Overlay Cladding of Wellhead Equipments, International Experience as Welding Engineer and Metallurgist Expert.

Welding Engineering and Production Manager, Including Research's, Education and Practical Applications. Industry Experiences of LNG, Non- LNG & Offshore Marine Loading Arms, Weld Overlay Clad of Wellhead Equipments (Plasma PTA, Laser Cladding, Hot Wire TIG).  
Members of the International Trim<sup>©</sup> Clad Committee Expert of FMC Technologies Inc. Houston.

### Area of Expertise's

- Welding Engineering , Materials Selection, Welding & Weld Overlay Cladding Technology, Welding Metallurgy, Weldability, Welding Consumables, Design of Weldments, Postweld Heat Treatment (PWHT), Corrosion of Welds.
- Development of Welding Procedure Specification (WPS) and Weld Overlay Cladding Specification, to ensure compliance with the relevant Codes and Customer's specifications (ASME, AWS, ASTM, API, CSA, NACE, EN. Welding, Weld Overlay Cladding Technologies, Hardfacing Stellite (Plasma PTA, Laser Cladding, Hot Wire TIG) & Welding Metallurgy of Carbon Steels (C-Mn) & Low Alloy Steels (Cr-Mo, Ni-Cr-Mo), Martensitic Stainless Steels (13Cr, 13Cr-4Ni), Duplex & Super Duplex Stainless Steels, Austenitic Stainless Steels, Nickel alloys, Aluminum..
- Development in Advanced Welding & Weld Overlay Cladding Technologies, Metallurgy and Weldability of Materials, Design of Welded Pressure parts and Structural parts, for Cryogenic & Corrosive services, Very High Pressure service equipments, Computational Welding Mechanics (CWM).
- Welding Repair Procedure (WRP), Management of repair welding projects, Welding procedure and performance qualification on the site, to ensure full compliance with the relevant codes and customers specifications.
- Technical Audit & Evaluation of the Subcontractors, Review of the Welding Procedures Specification (WPS & PQR) & Welders Performance Qualification , to ensure compliance with the relevant Codes and customer's specifications, Assistance for the Quality improvement in welding, Follow-Up actions for Applying "Lean Manufacturing" to welding operations, Waste Minimization by Removing All Non Value, Perfect First-Time Quality, Continuous Improvement...

### Professional Experience

#### 2010-Present ESWL<sup>©</sup> Consulting Expertise Services - SENS, 89100 - FRANCE

##### Welding Engineering Consulting Services

Professional Welding Consulting Dedicated to helping Industry Enhance Productivity, Product Quality and Cost-Effectiveness by Providing an Extensive Experience in Advances Welding Technology & Weld Overlay Cladding (Plasma PTA, Laser Cladding, Hot Wire TIG, ESW Clad) for the Oil & Gas Industry.

Short Reaction Time, Integrated Solutions Competence from One Single Source, Cryogenic and Corrosive Reliable Partner Focused on the Provision of Technical Welding Expertise & Third-Party Inspection Services. Assistance for the Quality improvement, Lean Manufacturing to welding operations, Waste Minimization by Removing All Non Value, Technical Audit & Evaluation of the Subcontractors...



**2007-2010 FMC Technologies - Loading Systems - SENS, 89100 FRANCE**  
**Site Welding Expert Manager Loading Systems**

Welding Engineer & Metallurgist, in charge to analysis and recommendations on welding specifications requirements for the customers; Studies and evaluated the Welding Processes Technologies improvements costs reductions. Establishes policies and standard for all the welding activities,

**2005-2007 FMC Technologies - Loading Systems - SENS, 89100, FRANCE**  
**Industrial & Technology Manager Loading Systems**

Managed and Directed the Production Engineering Department. Provide Welding expertise to the Production, Engineering, Sourcing, Customers services departments.

Reengineering process (Production & Engineering), productivity improvement, cost reductions, reinforcement to the Production Engineering Department. Analysis and recommendations on welding specifications requirements for the customers, Lead the Welding technology improvement.

Weld Assistant, Software implementation. Apply the principle of Kaizen for pressure piping by standardizing on One Wire, One Flux, One Gas and One welding system.

Study & Managed the major new projects investments and increased the efficiency.

**2003-2004 FMC Technologies - Loading Systems - SENS, 89100, FRANCE**  
**Production Manager Loading Systems**

Managed & Directed the Loading Systems Production Department, Analysis and recommendations on welding specifications requirements for the customers, Lead the cost reduction actions, externalization for the low values components, integration of sub-contractors. Lead the new Welding technology, the productivity improvements, the costs saving and the new projects investments to increase efficiency.

Implementation the GMAW-STT® welding process (Root pass) for Austenitic & Duplex Stainless Steels, Carbon Steels, develop the Welding process of Duplex Stainless Steels with Automatic Welding PAW keyhole,

**1999-2002 FMC Technologies- LoadingSystems & Wellhead - Sens, 89100, France**  
**Technology Manager - Loading Systems & Wellhead**

Managed & Directed the Manufacturing Engineering department,

Analysis and recommendations on welding specifications requirements for the customers. In charge for the two product lines, to lead the new Welding Technology, the productivity improvements and the costs savings actions. Study & Managed the new projects investment and increased efficiency and Savings.

Proposal & Investment new Automatic Welding Plasma & SAW equipments, Develop high performance welding with Automatic GMAW-P of Casting Aluminum.

**1990-1998 FMC Technologies- Loading Systems & Wellhead - Sens, 89100, France**  
**Production Manager- Loading Systems**

Managed & Directed the Loading Systems Production Departments. In charge to the Welding & Cladding & Overlaying activities for the Loading Systems and Wellhead (LS & WED), the machining and assembly activities for the Loading Systems (LS).

Analysis and recommendations on welding specifications requirements for the customers; Lead productivity improvements, costs savings and actions for applying Lean to the Welding Management.

Study & Managed the Loading Systems Factory Plant Extension, the new projects investments and increased efficiency and Savings.



**1988-1989 FMC Technologies - Loading Systems & Wellhead - Sens, 89100, France**

**Manufacturing Engineering Manager- Loading Systems**

Managed and Directed the Manufacturing Engineering department.

Welding Engineer in charge to research and develop the Welding, Overlaying and Cladding Procedure Specification (WPS & PQR) for Cryogenic & Corrosive services

Analysis and recommendations on welding specifications requirements for the customers, Lead productivity improvements & costs savings group,

**1983-1988 FMC Technologies - Loading Systems & Wellhead - Sens, 89100, France**

**Manufacturing Engineering Supervisor**

In charge to lead the Manufacturing Engineering Welding group,

Welding Engineer-Research's of Welding & Cladding technology, Developments for cryogenic applications (Marine Loading Arms) New process (PAW Keyhole & deconfined – Hot wire TIG –SAW –GMAW-P) Research's of Cladding & Overlaying Welding Process (GMAW-P/ Versus Cold & Hot Wire TIG – PAW-T Welding) for Wellhead equipments.

Analysis and recommendations on welding specifications requirements for the customers, Lead productivity improvements & cost savings actions.

Study & develop the Welding Procedure Specification (WPS & PQR) for Low Alloy Steels, Martensitic Stainless Steels for Sour service.

**1979-1982 FMC Technologies - Loading Systems & Wellhead - Sens, 89100, France**

**Welding Engineer- Manufacturing Engineering**

Welding Engineer in charge to researches and develops the Welding Procedure Specification (WPS & PQR) for Cryogenic & Corrosion services.

Analysis and recommendations on welding specifications requirements for the customers,

Study & investment of new Welding Technology for corrosion resistance by Automatic Overlaying GMAW-P welding process for Marine Loading Arms

Study & investments of new welding technology for Cryogenic applications, high quality by Automatic PAW keyhole, Cold & Hot Wire GTAW and SAW Welding processes.

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**International Experience**

Various responsibilities' such as Welding Engineer and Metallurgist Expert, Manufacturing Engineering & Production Manager.

This included traveling in Europe, US and around in the world, for Welding ,Metallurgy, Corrosion Expertise's, Quality Audit, Technical support ,Technologies transfer, Subcontractor evaluation, Factory capability.

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**Welding Research's & Developments**

**Weld Overlaying Equipment for Corrosion Resistance**

Study & investment of new Automatic welding machine for Weld Overlaying by Gas Metal Arc Welding-Pulsed Process, Transistorized Power Source, special water cooling Torch (GMAW-P), High performance and Quality of Weld Overlay (1990).



### [Welding Metallurgy of Austenitic Stainless Steel for LNG service](#)

Welding processes evaluations and new welding technologies investments (PAW Keyhole & deconfined, Cold & Hot Wire GTAW, SAW, GMAW-P, SMAW) for compliance to the high level of Toughness requirements (KCV -196°C) for Cryogenic service (GDF – 1979/1980).

### [Welding of Carbon Steel \(C-Mn\) Pipe 24" Thick 19mm](#)

Welding processes evaluations, high productivity by Automatic PAW keyhole Welding Technique, and Submerged Arc Welding processes (SAW), Performance & Cost savings. (Distrigaz - 1981/1982).

### [Welding of AISI 4130-4140 & AISI-8630 Low Alloy Steels](#)

Welding process and Weldability of AISI 4130-4140 (Cr-Mo) & AISI 8630 (Ni-Cr-Mo), for sour service, exclude the presence of hydrogen in weld metal, Preheat & PWHT, to avoid Sulphide Stress Corrosion Cracking (SSCC) and to obtain the hardness values (22HRC maxi.) in the weld metal, HAZ. (Wellhead – 1992/1993)

### [Welding of AISI-410 Martensitic Stainless Steels](#)

Welding process and Weldability of AISI-410 (13% Cr), for sour service, exclude the presence of hydrogen in weld metal, Preheat & PWHT, to avoid Sulphide Stress Corrosion Cracking (SSCC) and to obtain the hardness values (22HRC maxi.) in the weld metal (Wellhead – 1994/1995)

### [Welding of ASTM A 182 F6NM Martensitic Stainless Steels](#)

Welding process and Weldability of ASTM A 182 F6 NM (13% - Cr-4%Ni) , for sour service, exclude the presence of hydrogen in weld metal, Preheat & Double PWHT, to avoid Sulphide Stress Corrosion Cracking (SSCC) and to obtain the hardness values (23HRC maxi.) in the weld metal (Wellhead-1996)

### [New Welding Power Source Technology & Applications](#)

Weld Overlaying & Cladding for Corrosion Resistance Wellhead Equipments.

Investigation and evaluation of the new generation of GMAW-Pulsed, Transistorized Welding power source. The new generation of power source, Hybrid, with a interrupter and linear power circuit (Wellhead -1989)

### [Inconel 625® GMAW Welding Wire](#)

Evaluation and Investigation of Inconel 625® GMAW welding wire for high-speed wire feed. Surface & Metallographic Examination, Electrical conductivity testing, Microbeam Esca testing, conclusions & recommendations of suppliers (Wellhead - 1990).

### [Metallurgical Stability of Austenitic Stainless Steels for Cryogenic service & Stress Corrosion Cracking environment](#)

Welding experience of welded prefabricated pipe work in Austenitic Stainless Steels for Stress Corrosion Cracking environment (SCC), AISI TP321, specification requirement of customer with PWHT, Cooling procedure, internal gas purge, furnace procedure & calibration (MLA – 1994).

### [Welding of equipments for Caustic Soda Service](#)

Welding experience of welded prefabricated pipe work in Carbon Steels (C-Mn) with PWHT, according to the NACE requirements (MLA – 1998)

### [Proposal & Investment of the Automatic Welding Plasma Keyhole & SAW Equipments](#)

Performance and high productivity in prefabricated pipework by Automatic welding Plasma keyhole (PAW), Plasma "Deconfined" and Submerged arc welding process (SAW), reduction of global costs (Thesis 2000 – FMC Technologies Inc.Houston).



### Welding of Aluminum Alloy

Automatic GMAW-P welding process of AS-7G, Casting Aluminum Alloy to 5086 Alloy, Filler metal ER-4043 & Gas mixture (He/Ar) High performance process of pipe work & Cost savings (T&TRC -2003)

### Welding of 22% Cr Duplex Stainless Steels

GMAW-STT® welding process for the root pass of pipes. The experience with the new generation of welding power sources, with wave form control® (MLA – 2002)

The low heat input in the root pass due to the welding speed, the weld metal pitting corrosion properties and Ferrite level was in accordance to the customer specification. High performance welding process, Quality, Cost saving, versus GTAW welding process

### Welding of 22% Cr Duplex Stainless Steels

Automatic Welding PAW-keyhole for the root pass in prefabricated pipe work

The weld metal pitting corrosion properties and ferrite level was in accordance to the customer specification.

High performance welding process, Quality, Cost saving versus GTAW welding process (MLA – 2002)

### Automatic Welding-PAW Keyhole of AISI 304L/316L Cryogenic

Performance, high productivity and Quality by Automatic PAW keyhole Welding & Plasma “Deconfined” of Austenitic Stainless Steel (TP304L/316L), Dimensional & deformations of critical components

High performance welding process, Quality, Cost saving (MLA – 2004).

### Automatic Welding -PAW Keyhole & SAW-(FCAW-wire) of Carbon Steel (-50°C)

Performance and high productivity in prefabricated pipe work by Automatic Plasma keyhole welding, Plasma “Deconfined” and Submerged arc welding process (SAW)-Metal cored wire.

Apply the principle of Kaizen for pressure piping by standardizing on One Wire , One Flux, One Gas and One welding system, to cover the welding range of Carbon steel (C-Mn) temperature service -50°C.

High performance welding process, Quality, Reduce the Number of WPS & PQR, flexibility, welding of Swivel joints with high tolerance parts, Global cost saving (MLA – 2005).

### GMAW-STT® of Root Pass

GMAW-STT® welding process of root pass in prefabricated pipe work (Carbon Steel, Stainless Steel, Duplex & Super Duplex Stainless Steel). The experience with the new generation of power sources, with waveform control® (MLA – 2006).

### Flame Heat Strengthening Specification

Development of flame Heat Strengthening procedure for Carbon Steels (C-Mn), Austenitic Stainless Steels (TP304L/316L), Duplex Stainless Steels (22% Cr) to preserve the mechanical properties, the corrosion resistance

Welder's qualifications, surface preparation, Infrared equipment to control the maximum temperature of flame, final inspection (MLA – 2003/2004).

### Welding Technologies Software's

Experiences of “Weld Assistant” software implementation on Production Engineering welding department, Potential cost saving, Upgrade the databanks of the welding codes by on line service, Welders qualification management etc.(MLA – 2005/2006)



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## Education

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Welding Specialist -1972/1974  
Institut de Soudure of France, Paris

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## Post Graduate Education

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- ☑ Welding Engineer & Metallurgist -Graduate Level Program Course-1976 –1980
- ☑ Welding Technologies, Welding Metallurgy & Corrosion & Welds Design Optimisation.
- ☑ Institut de Soudure of France, Paris
- ☑ CTAS –Technical Center of Welding Applications , SAF- AIR LIQUIDE – Paris

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## Post Graduate Research –1986-1987

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### Weld Overlay Cladding Technology (Thesis 1987 - FMC Technologies Inc.Houston )

Proposal for Automated Valves and Block Valve bore Cladding system, Cold Wire & Hot Wire GTAW Welding Process, welding equipment interfaced by calculator and vision system, Metal deposit Inconel 625<sup>®</sup>.

Automated Cladding System for Wellhead Valves and Block Valves Bore, Inconel 625<sup>®</sup> Weld metal deposit of AISI 4130, Low alloy steels (Cr-Mo), Base Metal, Cold wire & Hot wire GTAW Welding Process Evaluation, Versus GMAW-P and PAW-T Welding.

Weldability of AISI 4130 (Cr-Mo) , for sour service, exclude the presence of hydrogen in the weld metal, Preheat & PWHT, to avoid Sulphide Stress Corrosion Cracking (SSCC) and to obtain the hardness values (22HRC maxi.) in the weld metal, HAZ, To meet the requirement of the latest revisions on NACE MR-01-75 and API Spec 6A.

- CATS– Technical Center for Welding Applications (Framatome-Nuclear) - Le Creusot, France
- Institut de Soudure of France, Paris

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## Continuing Education

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- 1981- Welding Metallurgy of Fusion zone –Institut de Soudure (France)  
Marseille, France
- 1982- National Conference of Welding –Institut de Soudure (France)  
Lyon, France
- 1984- National Conference of Welding Metallurgy and Welding processes  
Institut de Soudure (France) - Paris
- 1989- National Conference of Pressure Vessels (AIFAP)  
Paris, France
- 1989- Fundamentals of Materials Selection and Welding (FMC-CTC)  
Sens, Yonne, France
- 1990 Welding Fume, Effects, Control and Protection –Institut de soudure (France)  
The Welding Institute (UK) — Strasbourg, France
- 1991- Eurojoin 1 First European Conference on Joining Technology (IIW) - Strasbourg, France
- 1991- World Conference of Duplex Stainless Steels  
Beaune, Bourgogne, France



- 1992 FMC Corporate Technology Center -Training (CTC)  
Santa Clara, California
- 1992 Safdual – Flux-Cored Wire (FCAW) - Seminar (Air Liquide)  
Chalons sur Marne, France
- 1994 Eurojoin 2 Second European Conference on Joining Technology (IIW)  
Florence, Italy
- 1994 National Conference of Pressure Vessels–Cetim (Paris)  
Senlis, Paris, France
- 1997 World Conference of Duplex Stainless Steels  
Maastricht, Netherlands
- 1998 Trends in Welding Research – Institut de Soudure & Cetim (France)  
Courbevoie, Paris, France
- 1999 Welding Conference as Member  
- Present Institut de Soudure, Villepinte, Paris, France

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## Academic Experience

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### Educator for Post Graduate and Engineer's School

1985-2006 -Educator for Post Graduate School  
DUT/BTS/License/ Master / Engineer's

1998-2004 - Educator for Engineer's School (ITII-Auxerre)  
Mechanical and Production Engineers

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## Presentations

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### Cladding Technology Meeting:

Trim® Clad Committee meeting as FMC Technologies Member, FMC Houston Texas, FMC Sens, France, FMC Dunfermline, Scotland, FMC Singapore, AGIP Milan..

### Air Liquide - Welding Conference:

Reducing Welding Costs by the use of a Rutile Flux Cored wire (-50°C)  
Technical reasons for the choice of a Rutile Flux-Cored wire (FCAW)  
Safdual Seminar – October 13 &14 (1992) Chalons sur Marne, France.

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## Affiliations Member

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- American Welding Society ( 1990 to present)
- Institute de Soudure ( Paris –1978 to present )
- The Welding Institute (TWI-UK –1990 to present)
- German Welding Society (DVS– 2000 to present)
- American Society for Metals ( 1994 to 2002)