# Stuck in the Box - Challenges in Glovebox Ergonomics

Gloveboxes present inherent ergonomic challenges as most of their physical features are non-adjustable. Los Alamos National Laboratory's (LANL) Plutonium Facility has over 300 gloveboxes in use today with 400 glovebox workers performing manufacturing work inside gloveboxes for most of their work days. As a result, LANL's ergonomics team has a specialized glovebox functional area to mitigate ergonomic risks that gloveboxes present. This presentation will focus on how a specialty ergonomics program like glovebox ergonomics can come to be established, starting from recognizing ergonomic issues in gloveboxes to maintaining a steady productive program. Some engineering solutions and worker trainings developed through this glovebox ergonomics program will also be shared in this presentation.



## **About This Webinar Series**

This webinar series has been developed to disseminate information to the glovebox and isolator industry. Webinars will be held on November 11th and December 2nd. Topics include:

Stuck in the box - Challenges in Glovebox Ergonomics

Optimizing the Welding of 300 series Stainless Steel for Glovebox Applications

Low Moisture Glovebox Applications

Testing of Unleaded Shielding Gloves

LANL Lessons Learned

AGS Update: What is Happening and What is on the Horizon





## Meet The Speaker Martha Chan

Martha Chan is an ergonomist for Los Alamos National Laboratory, specializing in glovebox ergonomics. She holds a master's in Human Factors and Systems Engineering. Martha is a certified Associate Ergonomic Professional and a member of AGS since 2016.

## **Webinar Pricing**

#### **AGS MEMBERS:**

Full Series: \$110

Individual Webinars: \$75

#### **NON-MEMBERS:**

Full Series: \$235

Individual Webinars: \$125

JOIN & SAVE: \$185

# Optimizing the Welding of 300 series Stainless Steel for Glovebox Applications

Stainless steels are typically used in applications where greater corrosion resistance is needed over that of carbon or HSLA steels. This presentation covers a comprehensive overview of the weldability concerns associated with the 300 series Stainless Steels. Key attributes and characteristics are discussed that are essential to producing defect-free weldments that are fit for service for the life of the component. Specific items discussed include:

- o Chemistry
- o Weldability
- o Corrosion Resistance
- o Pickling/Passivation
- o Defects Causes & Cures
- o Welding Processes for Stainless Steel
- o Sensitization & Detrimental Intermetallic Phases
- o Mechanical Property Optimization
- o Failure Modes
- o Material Selection Pros/Cons
- o NDE Methods

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# Meet The Speaker

Stan Gingrich, P.E.

Stan earned a B.S. in Welding Engineering, and an MBA in Operations Management. He is Director, Materials & Welding Engineering for Amentum and provides materials, welding, metallurgical, and corrosion expertise to projects and sites in all business groups and divisions worldwide. Before joining Amentum, he had consulted in many industries, including power generation (nuclear, fossil fuel, geothermal, hydroelectric), transportation (bridges, highways, dams, infrastructure, etc.), construction, defense, DOE, demilitarization, automotive, chemical processing, etc., for numerous companies specializing in the area of materials & welding engineering and quality control programs. Stan serves on several industry code committees including serving as Chairman ASME Task Group on Duplex Stainless Steels. Stan also serves as the U.S. Delegate to the International Institute of Welding (IIW). He has also served on several AWS subcommittees, is a contributing author for the AWS Welding Handbook, and an AWS Distinguished Member for outstanding leadership and accomplishments.

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### Low Moisture Glovebox Applications

Controlling oxygen and moisture level within a glovebox is a common and relatively straight forward application. Maintaining and measuring low moisture levels, less than about 10ppm, can be challenging and the finer details of moisture instrumentation and calibration become more important. An investigation of a recent glovebox moisture excursion is presented with a discussion of maintaining low moisture levels in gloveboxes. Moisture instrumentation, calibration, and conversion of dew point temperature to ppm moisture levels is presented.



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# Meet The Speaker Craig Dees, P.E.

Craig is a Nuclear Research
Facility Engineer and Glovebox
engineer for Idaho National
Laboratory. At the INL Craig
works within the Radioisotope
Power Systems program, who's
mission is to assemble and test
power supplies for deep space
missions. Craig is a licensed
professional engineer, and has
been a member of the American
Glovebox Society since 2013.

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# **Testing of Unleaded Shielding Gloves**

Last year, Idaho National Laboratory (INL) received a shipment of unleaded shielding gloves for use in multiple gloveboxes. Prior to installation, the gloves were inspected and found to have some discoloration throughout the glove. To ensure that the gloves were acceptable for use, additional tests on the gloves were performed at INL. This presentation will provide an overview of the results of the tests.



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# Meet The Speaker Denis Johnston

Mr. Johnston has been a design engineer at the Idaho National Laboratory for the last two years. His main focus has been glovebox design and installations at the Advanced Fuels Facility. Prior to working at the INL he spent time at the Naval Reactors Facility, the Radioactive Waste Management Complex, and a private manufacturing firm. He holds a Bachelors of Science Degree in Mechanical Engineering from the University of Idaho.

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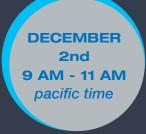
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### **LANL Lessons Learned Update**

Stanley Trujillo and Wendy Conley will provide lessons learned from Los Alamos National Laboratory. Topics will include:

- COVID-19 related challenges working in a laboratory environment
- Complacency & Glove challenges
- Glovebox Lessons A year in review



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## **Meet The Speakers**

### Wendy Conley & Stanley Trujillo

Wendy Conley, has worked at Los Alamos National Laboratory (LANL) for 26 years. Her first 3 years were spent at the Los Alamos White Rock Training Center where she got her feet wet understanding and assisting in training the required new hires when they joined LANL. Wendy went on to spend 13 years at one of LANL's original Technical Areas know as S-Site where the gadget was assembled and later detonated in the Trinity nuclear test. Wendy served in many capacities of which 10 years were as an Operation Support Manager supporting the many explosives and testing sites. Wendy's desire to learn more took her to LANL's technical area TA-55, LANL's premier nuclear facility where she became a Conduct of Operations subject matter expert and then on to becoming the Glovebox Safety Program Manager where she has over site of the safety management program for approximately 800 gloveboxes. In this position, Wendy has developed a glovebox and enclosure sharps program and worked with the ergonomics department in obtaining better and safer tools for the glovebox workers.

Stanley Trujillo is a Contractor Assurance Specialist with the Institutional Quality Performance Assurance Group at Los Alamos National Laboratory (LANL), where he currently manages the Lessons Learned/operating experience program (also known as OPEXatLANL). With over 20 years of experience at LANL, Stanley has expert knowledge with radiological/glovebox work within the Plutonium Facility (also known as PF-4), at TA-55.

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### AGS Update: What is Happening Now and What is on the Horizon

AGS is a non-profit organization formed in Denver, Colorado, in 1986 to promote safety and quality of glovebox systems; promote communication; disseminate knowledge in the field of glovebox technology through symposia, publications and other media; and recommend standards and guidelines for glovebox technology to existing national and international associations, and promote adoption of such approved standards to reduce costs, both fabrication and operational. The definition of a "glovebox" as used by the Society includes enclosures, barriers, and isolators.

AGS President Gary Partington will provide an update regarding AGS activities. This will include information about the upcoming Conference, the Enclosure magazine, and AGS Guidelines and Standards publications.



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# **Meet The Speaker**Gary Partington

**AGS President** 

For over 2 years Gary Partington has been the Technical Sales Manager - Containment Systems for ProSys Containment & Sampling Systems who are based in Ireland. His focus has been on custom containment isolator systems for the Pharmaceutical Industry in North America. Gary has over 30 years experience in aseptic and containment isolator systems with various isolator companies and is a member of the International Society of Pharmaceutical Engineers and the Parenteral Drug Association. Gary holds a Bachelor of Science Degree in Mechanical **Engineering from New Jersey** Institute of Technology.

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## **November 11 & December 2**

9 am - 11 am (Pacific Time)

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