



## Aerospace Portfolio

# NASA – Wallops Island Launch Pad Skids

### About Us

Since 1985, High Purity Systems has provided precision welding, quality piping installation and fabrication solutions to the industrial sector. High Purity Systems delivers value and responsiveness to meet the ever-changing needs of our clients. Expertise includes Class 100 Clean Room orbital welding, onsite piping installations from stainless steel to carbon steel, piping fabrication shipped nationally and custom prototyping.

### Contact Us

8432 Quarry Road  
Manassas, VA 20110  
[www.HighPurity.com](http://www.HighPurity.com)  
[info@HighPurity.com](mailto:info@HighPurity.com)  
(703) 330-5094

### The Problem

High quality process piping is the foundation of any laboratory. When a client from the semiconductor industry wanted to build a research and development laboratory, they called on High Purity Systems (HPS) to make sure the job was done properly.

During HPS' initial overview of the job, we noted that laboratory development would require connecting and installing process piping lines for installation of a Metalorganic Chemical Vapor Deposition (MOCVD) tool using highly specialized equipment. For HPS, this project was well within our comfort zone.

Before delving into the project details, we want to thank — yes, thank — one of our competitors for helping our customer recognize that HPS provides unmatched services expertise. Our competitor subcontracted its installation work, which led the customer to question the competitor's experience in performing high purity gas line installations and the company's commitment to getting the job done right. At HPS, we are proud to say we perform our own installations — without subcontractors — and deliver unrivaled quality.

### The Strategy

We designed the facility skids with job specific components and precise specifications to operate in severe weather and operational conditions in adherence with the critical guidelines set up for the LFF program. Once the final drawings were approved for fabrication, the HPS team commenced production.

We built the skids (some as big as 8' wide by 22' long) with structural steel and then they were hot dip galvanized to ensure maximum corrosion resistance. To cut down on conductive electrolysis, we machined and installed micarta laminate sheets as standoffs between the steel supports and the stainless steel piping.

After we removed all possibilities for stainless steel to come in contact with the galvanized steel, we began the piping work. We laid out all the skids in order of schedule priority at our fabrication facility; this made the entire construction and fabrication process as efficient as possible.



The crews had to pay close attention to detail to adhere to welding codes ASME B31.1, as well as severe cyclic criteria for ASME B31.3 process piping. We took extreme care to guarantee that each weld would perform reliably for the life of the system. The project utilized equipment including TIG welders, tube and pipe flaring equipment, and our mandrel pipe bender. By bending the stainless steel pipe, we were able to increase productivity and reduce overall costs of the project.

Because of the one-of-a-kind nature of this project, engineering modifications were ongoing throughout production. With frequent conversations between HPS and the designer to keep communication open and respond to any challenges before they became problematic, everyone worked together smoothly in an effort to produce the best product with the least amount of down time.

Each skid had an inlet and an outlet, with some equipped with more than one. From the inlet flange, the stainless steel pipe system meandered through a series of valves, regulators, and flow meters to meet the outlet flange. Planted over top of the main piping was a system of hangers for more tubing. The  $\frac{1}{4}$ " and  $\frac{1}{2}$ " tubing was bent, flared, routed, and rose together before splitting off to go to its final connection point.

We used some of the tubing to pipe out pneumatic controllers on valves and other tubing to supply pressure to gauges and flow-indicators. Each skid was a cleanly-designed, efficient stainless maze. Once we finished the piping, the electricians mounted switch boxes and finally installed safety shut-offs and indicator lights.



## The Result

Thanks to a team effort from engineers, designers, welders and fabricators, the creation of these LFF skids resulted in a successful rocket launch in February 2013. We were truly proud to be part of the ground support effort for this project. With the quality systems that we supplied for this launch pad, HPS was able to reach for the stars — and beyond.