case study

engineering | architecture
PEDCO
reliable solutions. expected results.

project type

Spacecraft Propulsion Research Facility Renovation Scoping Study

project name

Exhaust System Modifications for J2X Testing at Plumb Brook Station B-2

location

Sandusky, Ohio

client

National Aeronautics and Space Administration

scope

PEDCO was selected to join an engineering team to study and design improvements for the exhaust systems at NASA's Spacecraft Propulsion Research Facility B-2, located at Plumb Brook Station in Sandusky, Ohio. Plumb Brook is the world's only full-scale, thermal vacuum, high-altitude rocket engine and upper stage propulsion test facility. NASA's timeline requires construction be complete for integrated systems testing in 2010.

PEDCO's design for improvements to the exhaust systems will include:

- Process Steam System
- Process Cooling Water System
- Ejector Systems

Once complete, the exhaust systems will boast cooling water flow at a rate of 400,000 gallons per minute, and will utilize 1.75 million gallons of water, chilled to 40 degrees Fahrenheit.

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As part of these improvements to the exhaust systems, a new steam system will be required, including:

- Steam system capacity to a flow rate of 1,900 pounds per second,
- Refurbishing of ejector trains and additions to triple the capacity
- Addition of three (3) 1 MW electric boilers (1,000 psig)
- Thirteen (13) 1000 psig steam accumulators
- Two steam supply legs (ejectors and steam blocker)
- Three-stage, condensing ejectors

services provided

Mechanical, Electrical

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