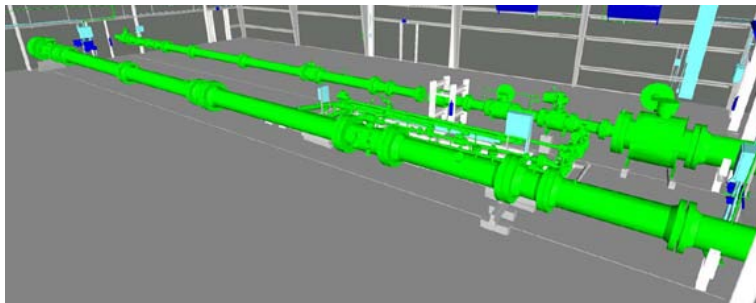


Upgrade Metering Facility hold



Client: CEESI [CEESI.com](https://www.ceesi.com)

Location: CEESI Ventura High Flow Facility near Ventura, IA
Start Date: July 2019
Completion Date:

CEESI performs accredited traceable calibrations for a variety of types of flow meters using numerous types of fluids. CEESI also offers calibration-related engineering services, wet gas/multiphase testing, valve testing and flow measurement training.

CEESI is accredited to ISO/IEC 17025 for calibrations by the American Association for Laboratory Accreditation (A2LA).

<https://www.ceesi.com/contact-us>

The facility accesses up to 1 BCFD of gas from a midstream sales line for SI traceable calibration of meters from 3 inch to 36 inch with flowrate uncertainties of 0.18% to 0.44% (depending on flowrate).

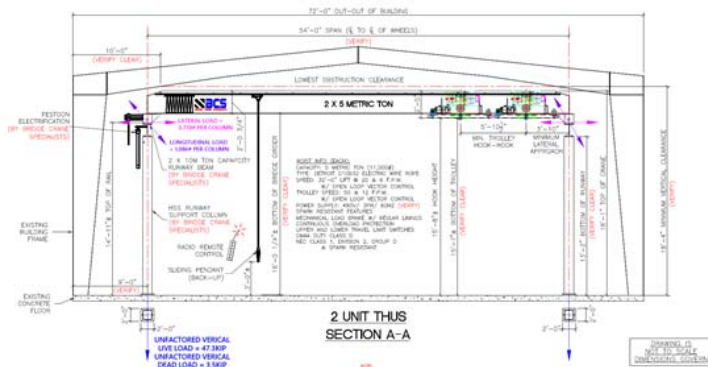
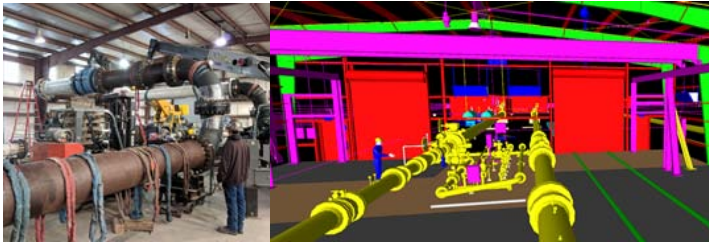
Resolute was contracted to supply project management, electrical, mechanical, structural and process engineering services to provide:

- Operability enhancements to increase the number of meters calibrated per day, including an overhead bridge crane, rail transfer system and automation of isolation and purge valves.
- System improvements include nitrogen purge c/w operating procedures, upgraded instrument air package and upgraded gas re-compressor to inject calibration gas back into the sales line.
- Design an installation of upgraded electrical service and a new MCC/PDC skid.
- Construction management – on site and home office support.



RELATED SERVICES AND TASKS

Overhead Bridge Crane to enhance material handling.



Specify MCC/PDC and transformer:



Procurement and material specification

Electrical classification drawings, one line drawings, cable and conduit specification, layout and detail drawings

Instrumentation and Electrical design for a new safety PLC, a new process PLC and gas and fire detection systems

Process engineering, including Process and Instrumentation Diagram (P&ID), purge system for purging calibration test sections to nitrogen from gas, to nitrogen from air and from nitrogen to gas.

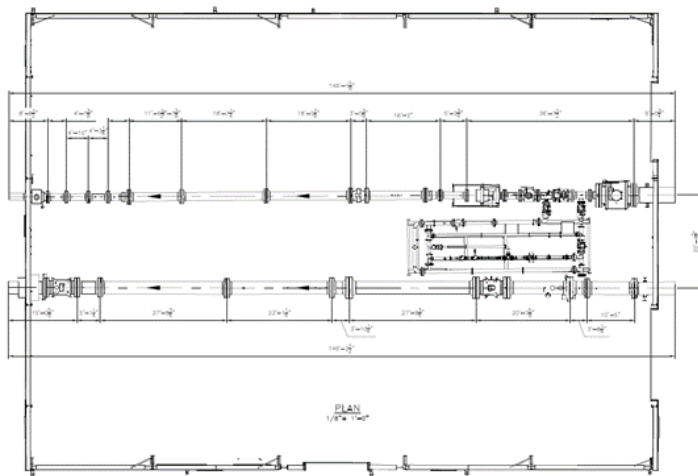
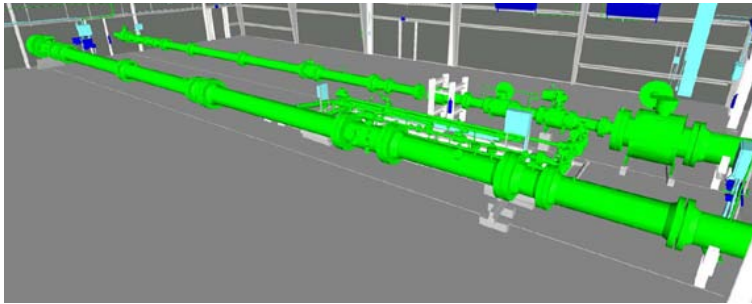
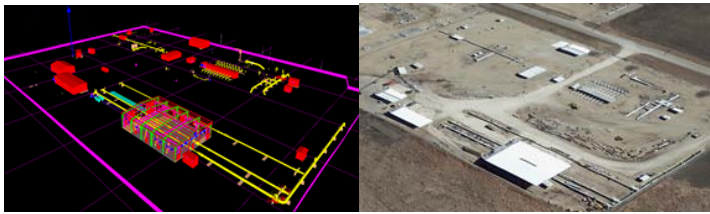
Develop welding procedures

Gap analysis for this party specifications against industry standards.



UNIQUE PROBLEMS / SOLUTIONS

The Resolute Engineering team leveraged their extensive operations engineering experience with a flexible approach to provide lean engineering solutions while generating minimal drawings to complete the various phases of the project. For example, Resolute created a 3D model from Trimble scan data to use as a design basis and for the creation of piping, electrical and structural drawings.



The Resolute Team used their operations experience to evaluate bulk liquid nitrogen (LIN) system (cryogenic) against a generated system nitrogen (electric drive air compressor, air dryer, nitrogen membrane and nitrogen gas accumulators) on a Life Cycle Cost basis. The LIN system was a clear choice and helped the client to defer capital cost in addition to improving NPV by \$94,000. Resolute also recommended 1 inch 304 SS tubing with Swagelok fittings as an alternative to welded piping for a further savings of approximately \$30,000.



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