



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

May 24, 2023

Bruce L. McDermott, Esq.
Murtha Cullina LLP
265 Church Street
New Haven, CT 06510
bmcdermott@murthalaw.com

RE: **PETITION NO. 1350A** – Generate NB Fuel Cells, LLC declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 19.98-megawatt combined heat and power fuel cell facility and associated equipment to be located within Building 107 on the corner of Curtis Street and the Pan Am Southern, LLC railroad tracks at the Stanley Black & Decker Campus, 480 Myrtle Street, New Britain, Connecticut.

Dear Attorney McDermott:

The Connecticut Siting Council (Council) is in receipt of the notification for pipe cleaning procedure dated May 23, 2023 regarding compliance with Condition No. 6 of the Council's Declaratory Ruling of December 21, 2021 for the above-referenced facility.

The Council acknowledges that the condition has been satisfied. This acknowledgment applies only to the condition satisfied by the May 23, 2023 correspondence.

Please be advised that deviations from the standards established by the Council in the Declaratory Ruling are enforceable under the provisions of Connecticut General Statutes §16-50u.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MB/MP/laf

From: Annie W. Lau <alau@murthalaw.com>
Sent: Tuesday, May 23, 2023 9:43 AM
To: Bachman, Melanie <Melanie.Bachman@ct.gov>; CSC-DL Siting Council <Siting.Council@ct.gov>
Cc: Bruce McDermott <bmcdermott@murthalaw.com>; alonso.garcia@generatecapital.com
Subject: Generate NB Fuel Cells, LLC (re Petition No. 1350A)

Dear Ms. Bachman:

Attached please find an electronic copy of our letter and attachments to be filed today on behalf of our client, Generate NB Fuel Cells, LLC, in reference to the above-mentioned Petition. The originals will be mailed via First Class mail today.

Thank you –
Annie Lau
Legal Assistant to Bruce McDermott

ANNIE W. LAU | LEGAL ADMINISTRATIVE ASSISTANT
Direct: 203-772-7764 | Fax: (860) 240-5914 | alau@murthalaw.com

MURTHACULLINA
Murtha Cullina LLP | Attorneys at Law | www.murthalaw.com
One Century Tower, 265 Church Street | New Haven | CT | 06510

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May 23, 2023

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Petition No. 1350A – Generate NB Fuel Cells, LLC declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 19.98-megawatt combined heat and power fuel cell facility and associated equipment to be located within Building 107 on the corner of Curtis Street and the Pan Am Southern, LLC railroad tracks at the Stanley Black & Decker Campus, 480 Myrtle Street, New Britain, Connecticut. Reopening of this petition based on changed conditions pursuant to Connecticut General Statutes §4-181a(b)

Dear Ms. Bachman:

Pursuant to Condition 6 of the Connecticut Siting Council's ("Council") December 21, 2021 decision in the above-referenced petition, Generate NB Fuel Cells, LLC (the "Company") hereby submits to the Council the attached pipe cleaning procedures ("Cleaning Procedures") (Attachment A). The Cleaning Procedures set forth the methods and medias to be used to clean the natural gas piping at the Company's New Britain project. Additionally, the Company provides the following in response to Condition 6:

- a. The cleaning media to be used will be nitrogen.
- b. Hazards through use of the selected cleaning media: See the Cleaning Procedures.
- c. Description of hazard mitigation: See the Cleaning Procedures.
- d. Description of accepted industry practices concerning the use of cleaning media: See the Cleaning Procedures.

Murtha Cullina LLP
265 Church Street
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F 203.772.7723

- e. Specifications indicating the location and procedures to be used: See the Cleaning Procedures.
- f. The contractor or personnel performing the work: Please see the letter from Modern Mechanical Systems, Inc. (Attachment B).
- g. Contact information for a special inspector: Please see Attachment C regarding Richard Gregoire, P.E. or IDEA, Inc. Additionally, the Company has received written approval of Mr. Gregoire from the City of New Britain's fire marshal and building inspector.

I certify that notice regarding the pipe cleaning operations has been given to all state agencies listed in Connecticut General Statutes Section 16-50j(h) as well as the Department of Consumer Protection, Department of Labor, Department of Public Safety, Department of Public Works and the Department of Emergency Management and Homeland Security

Should the Council have any questions regarding this filing, please do not hesitate to contact me.

Very truly yours,



Bruce L. McDermott

Enclosures

Gas System Commissioning – N2

DOC-1010208

Revision A

Estimated Evolution Time: 2 hrs

Number of Personnel: 2 Total

1 Inlet Attendant &

1 Discharge Attendant

Purpose

- This procedure intends to provide a clear process for CIG field workers ensuring natural gas delivery to site within Bloom Energy Specifications. More specifically, the objective of this procedure is to:
 - Ensure Compliance with:
 - NFPA 54 National Fuel Gas Code
 - OSHA and CalOSHA construction safety standards
 - Title 49 of the Code of Federal Regulations (DOT) safety standards
 - Regional Air Quality Management Board Regulations
 - Bloom Energy's Critical to Quality Standards, especially regarding
 - Gas piping system blow-down and purging standards
 - Only valid in the state of CT

Scope

- This procedure applies to all US BE construction sites in Connecticut.

Audience

- 1 CDA Input attendant (general or sub-contractor)
- 1 Discharge Attendant (Bloom Qualified Gas Personnel)

Applicable Documents

- NFPA 54
- DOC-1007152 SVC
- DOC-1009468 – Gas System Commissioning - CDA

Preliminary Requirements

Required Safety Trainings

- Bloom personnel on site must be documented as Bloom Energy (BE) Qualified Gas System Personnel, which includes:
 - Pipeline Safety
 - Compressed Gas Safety
 - LOTO
 - Valve Safety

Required Personal Protection Equipment (PPE)

- Safety glasses
- Gloves
- Hard hat
- High visibility clothing
- Work boots with safety toe protection

Special Precautions and Potential Hazards

- Verify fuel plumbing has been pressure tested for leaks by the utility and general contractor before executing this SOP (House Line Release).
- Oxygen monitoring is required for this operation.

Required Tools, Materials, and Equipment

- YFP Purge Hose (124422)
- House line installed
- Multi-Gas Monitor: minimum detection of Oxygen and Methane LEL
- Adjustable Wrench Set and/or two (2) Pipe Wrenches
- Gas Sampling Kit (BE# 131263)
- Caution tape and delineators
- Fire Extinguisher (2A or better).
 - This should already be on site.
- Filled Nitrogen Tank
 - QTY 1 approximately 75 Cu. Ft tank per 250 linear feet of 2" gas line (Praxair part NI-Q or equivalent)
 - QTY 1 approximately 140 Cu. Ft tank per 500 linear feet of 2" gas line (Praxair part NI-S or equivalent)

Section A: Nitrogen Purge of Construction Plumbing

1. Site Setup

- 1.1. Ensure all customer protocols are met and scheduled accordingly
 - 1.1.1. Multiple RSA on the same site requires a dedicated MOP, using this procedure as a guide.
- 1.2. Put On PPE.
- 1.3. Turn on personal gas monitor(s) and attach to the person(s) at the discharge location.
- 1.4. Set up cones and caution tape to establish a discharge area around the fuel stub up farthest from the MSA with a 10 foot radius around the point of discharge. Remove all non-essential personnel.
 - 1.4.1. Ensure that there will be no open flame within 50 ft
- 1.5. Ensure a 2A or better fire extinguisher is located within 50 feet of the discharge area.
- 1.6. Verify Each Fuel stub up valve is in the closed position (at YFP, and Upstream facilities valve, where applicable and shut each fuel stub up valve. See Figure 1.

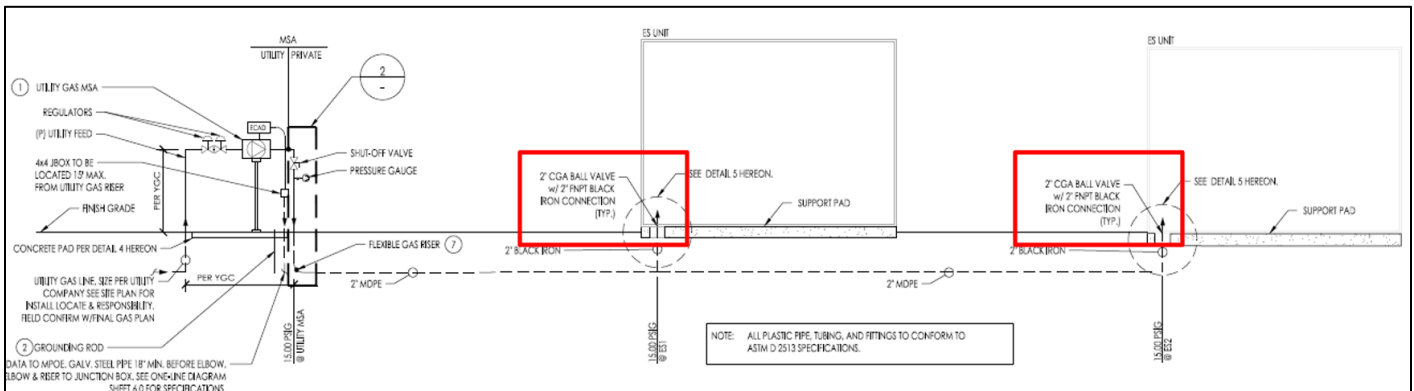


Figure 1

- 1.7. Identify Isolation valves on meter assembly.
- 1.8. Ensure all shut off valves are open between MSA and ESS and the stub-up valves are closed.

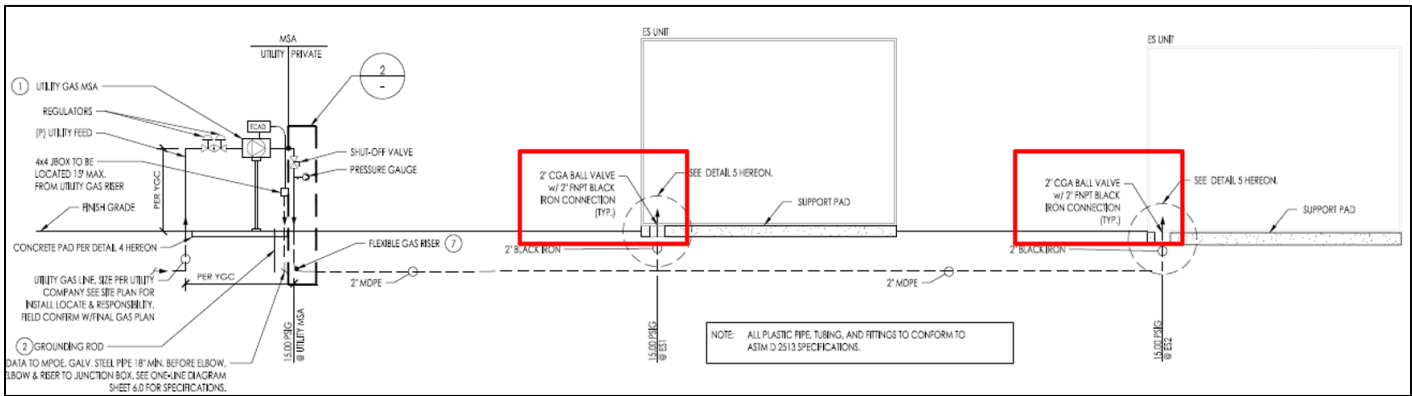


Figure 2

- a. If a YBB, reach out to the Construction Program Manager. Future instructions will go here. See Figure 3.

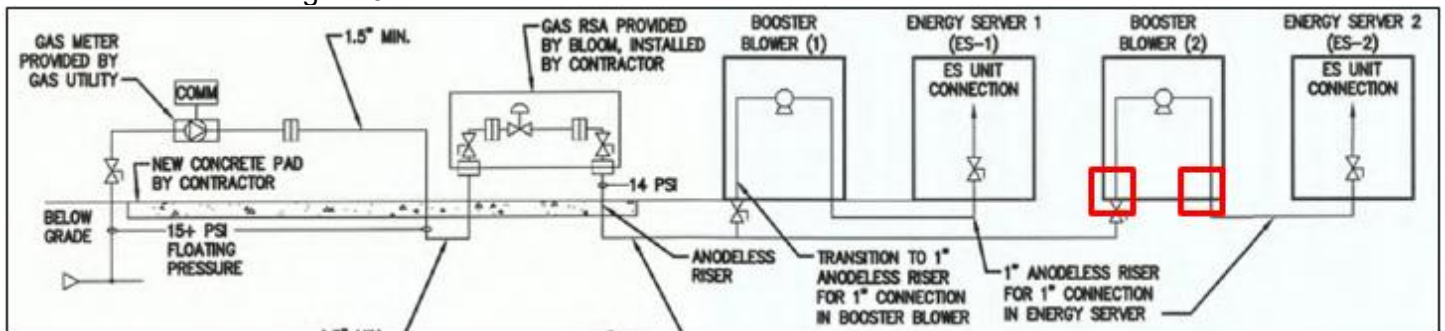


Figure 3

2. Follow the gas line from the MSA (or MSA gap) to the isolation valve on the stub up.
 - 2.1. Identify Isolation valve on meter assembly.
 - 2.2. Determine if gas pressure is available to the plumbing being purged, apply a LOTO to isolate gas if required.
 - 2.3. Perform a valve lineup to achieve the following:
 - 2.3.1. Meter Isolation valve is shut
 - 2.3.2. System gas stub up valve is shut
 - 2.3.3. All other valves between the meter isolation and system gas stub up are open
 - 2.3.3.1. If Parallel regulators, ensure only one set open, close isolations to the other set of regulators

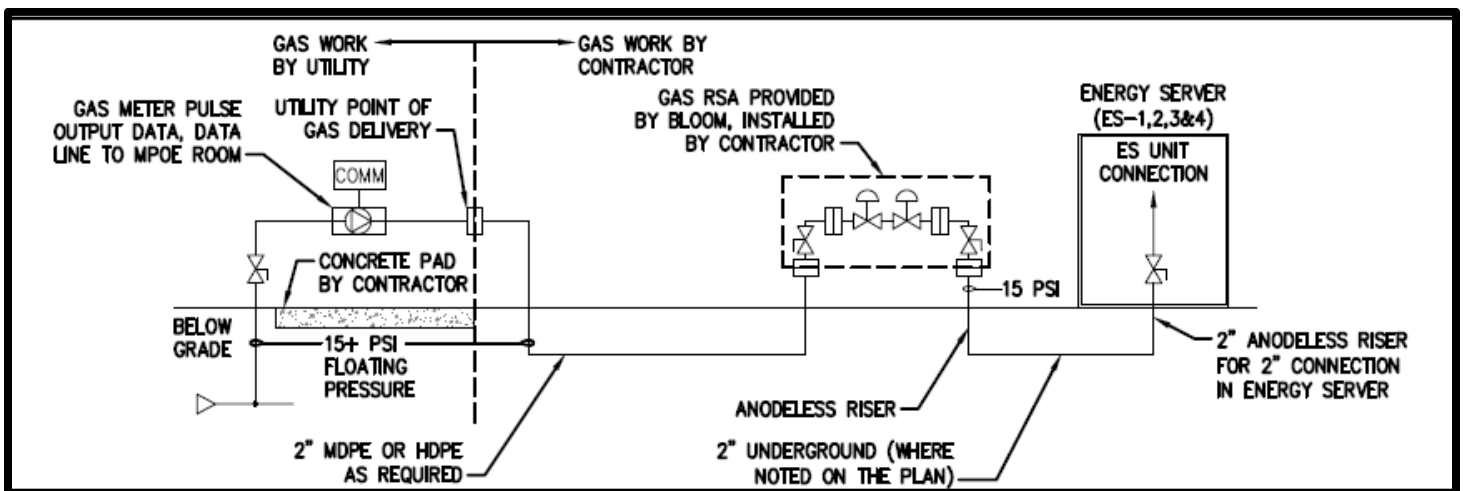


Figure 4

3. General/Subcontractor connects the supply of Nitrogen to the furthest point upstream without interfering with the Gas Utility scope of work.
4. Position Discharge Attendant with air monitor at the point of discharge.

5. Connect YFP Purge Hose.
 - 5.1. Disconnect YFP from the fuel stub up, if connected
 - 5.2. Attach YFP purge hose to fuel stub up
 - 5.3. Attach YFP purge hose to overhead QDC
6. Inlet attendant supplies intended operational system pressure (min of 60 PSI) to plumbing and corrects any leaks.
7. Once pressure holds, the Discharge Attendant slowly opens all valves between the Nitrogen supply and the discharge assembly
8. Discharge attendant then opens the discharge assembly full open
 - 8.1. Continuously monitor the discharge area for the following and create an incident report if any are found:
 - 8.1.1. Debris
 - 8.1.2. Liquid water
 - 8.1.3. Gas other than compressed air
 - 8.1.4. Discharge attendant shall continuously monitor the discharge area and be prepared to secure the flow.
9. Let Nitrogen flow through the purge assembly for 60 seconds, then secure for 60 seconds.
 - 9.1. Perform at least 6 on/off cycles (6 cycles per 200 ft. of underground pipe)
10. Close the stub up isolation valve
11. If part of the assembly, remove the purge hose Y strainer
 - 11.1. If debris found, take pictures, clean and log an incident.
12. Reinstall “y” strainer.
13. If the Gas stick is provided by Bloom, perform Section B, if it is provided by the utility (fixed pressure) Move to Section C

Section B: Setting the Bloom Gas Regulators

1. Possible Bloom Gas Stick Setups:

1.1. Dual Regulator (two regulators on a single run of pipe)

1.1.1. Perform Section B as written

1.2. Dual Parallel (four regulators on two runs of pipe)

1.2.1. Perform Section B once for each set

1.2.2. Ensure that the set not being used is isolated

1.3. Single Regulator (one regulator on a single run of pipe)

1.3.1. Follow instructions for the upstream regulator only

2. Di Discharge Attendant throttles open the discharge valve as little as possible while still discharging air.

3. Contract Plumber will throttle the compressed gas regulator to achieve delivery pressure (min of 60PSI) on pressure gauge upstream of the regulator set.

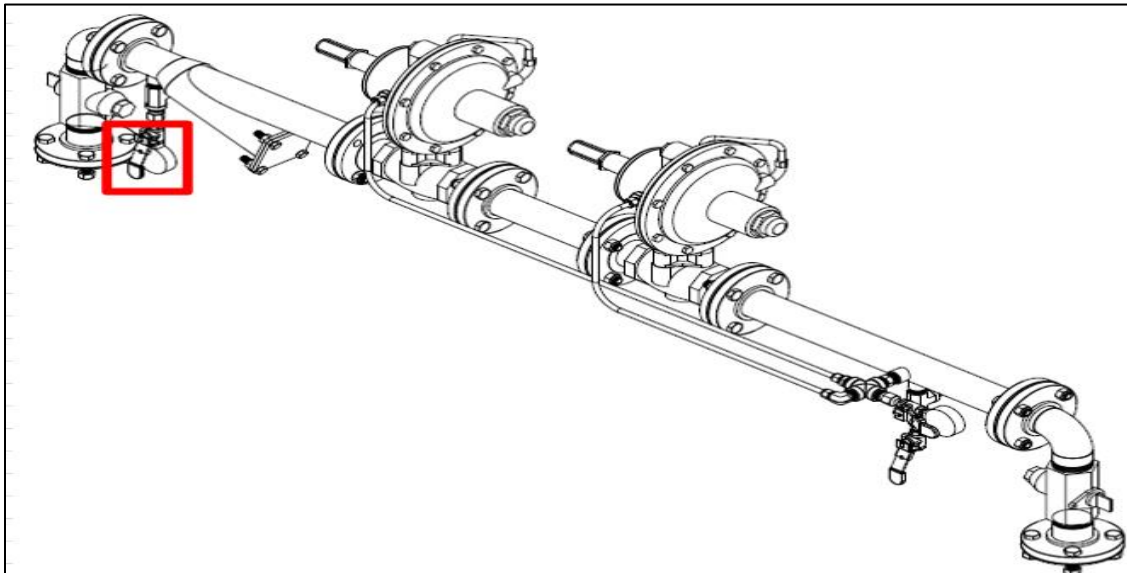


Figure 10

4. Discharge Attendant closes the valve on the vent assembly.
5. Remove the gray plastic covers from the Main Body Pilot adjustment screw from both regulators. Leave the cover on the small independent series 67 pilot assembly alone. See Figure 11.

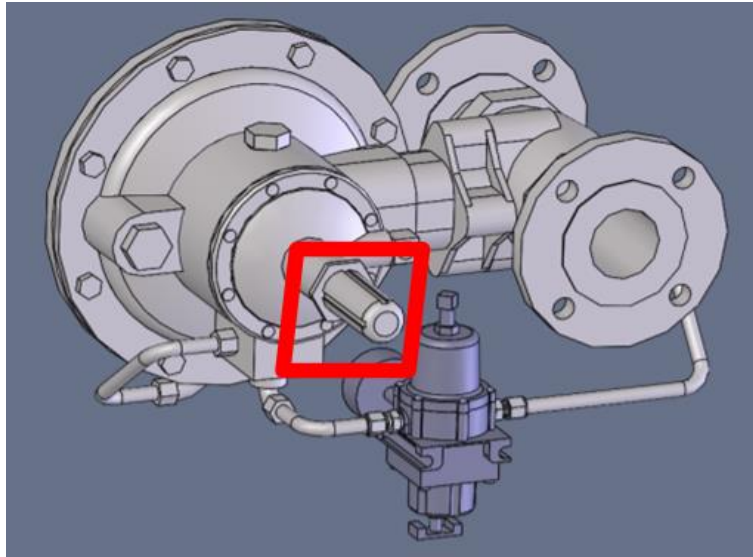


Figure 11

6. Turn the **Main Body Pilot** on the **upstream** regulator fully counter clockwise to stop any flow of gas.
 7. Turn the **Main Body Pilot** on the **downstream** regulator clockwise so the regulator is fully open.
- 7.1. If single regulator, ignore all **downstream** regulator instructions

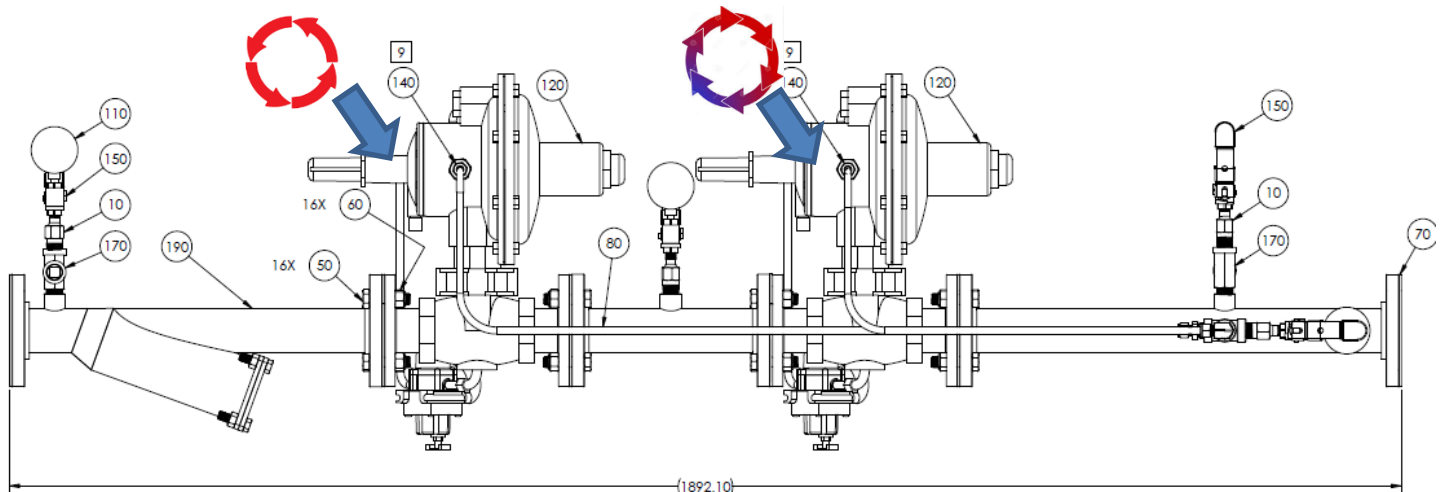


Figure 12

8. Crack open the discharge valve just enough so that the flow of air can be heard or felt.



Figure 13

9. Adjust the **Upstream** regulator first.
10. On the **Main Body Pilot** assembly, turn the adjusting screw clockwise to increase outlet pressure to achieve **18** psi as read on a gauge as far downstream as possible.
- 10.1. Be sure to adjust slowly to allow system pressure to stabilize after adjustment.

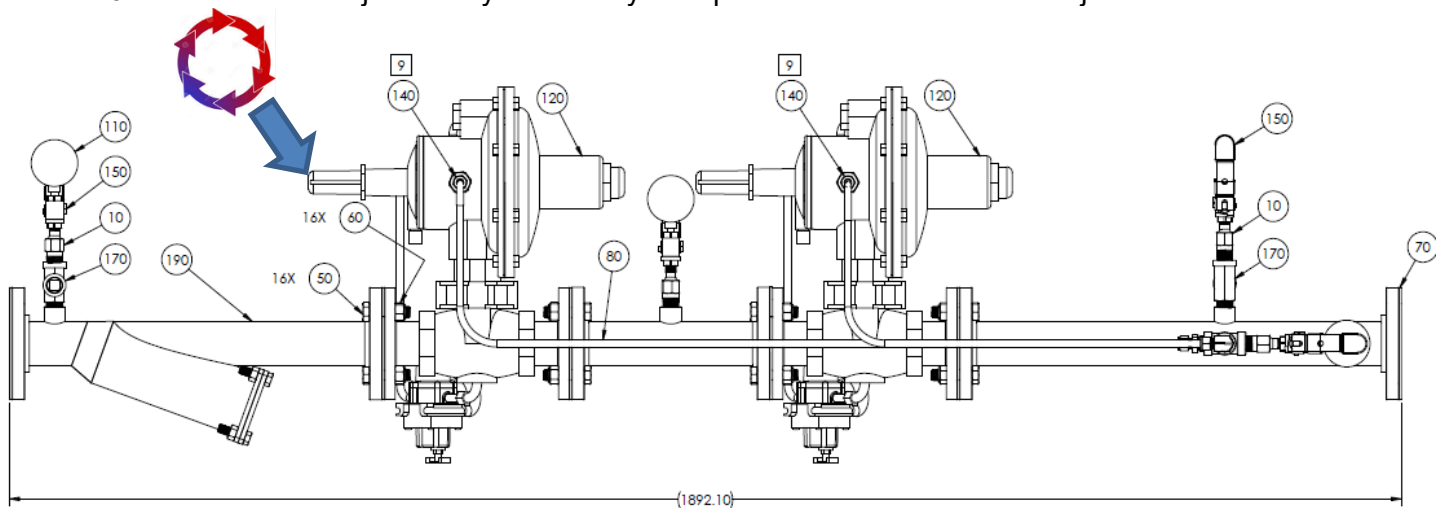


Figure 14

11. Adjust the **downstream** regulator second

11.1. On the **Main Body Pilot** assembly, turn the adjusting screw clockwise to increase outlet pressure or counterclockwise to decrease outlet pressure to achieve **15 psi** as read as far downstream as possible.

11.2. Be sure to wait for system pressure to change.

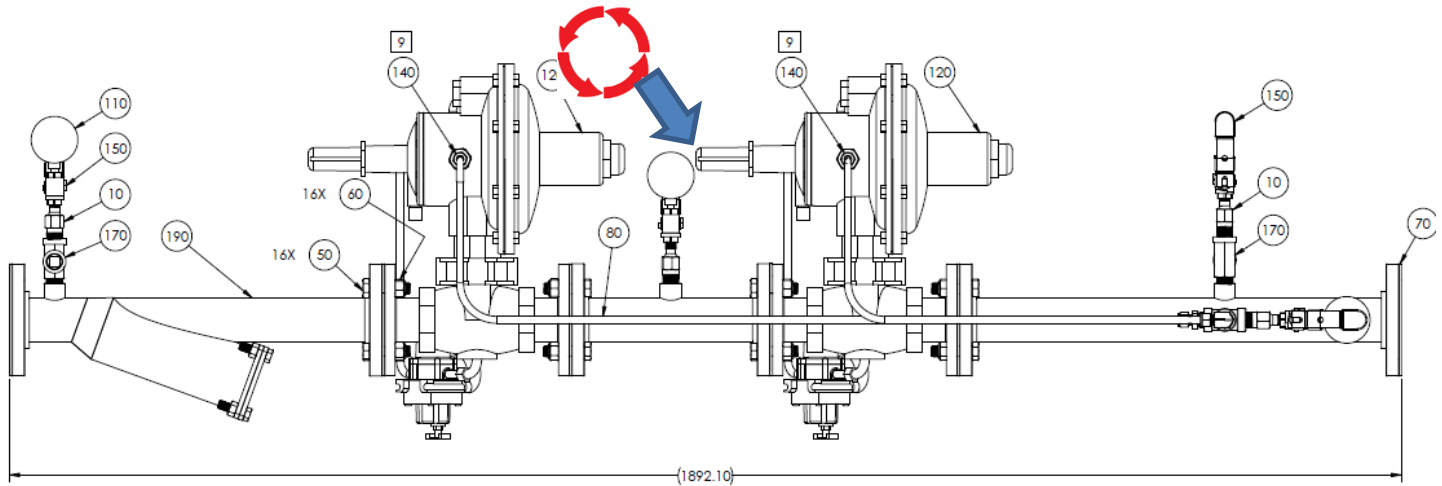


Figure 15

12. If the pressure on the upstream RSA riser gauge drops below expected delivery pressure at any time during the procedure, **STOP**, and re-pressurize the line and consider throttling down on the discharge valve.

13. Close the vent assembly valve.

14. If the gas stick is a dual parallel set and this is the first set dialed in, do the following (skip to next step if not):
 - 14.1. Isolate the dialed in set with the valves provided on the turndown
 - 14.2. Open the isolation valves for the pair that has not yet been set
 - 14.3. Repeat Section B for the second set of regulators

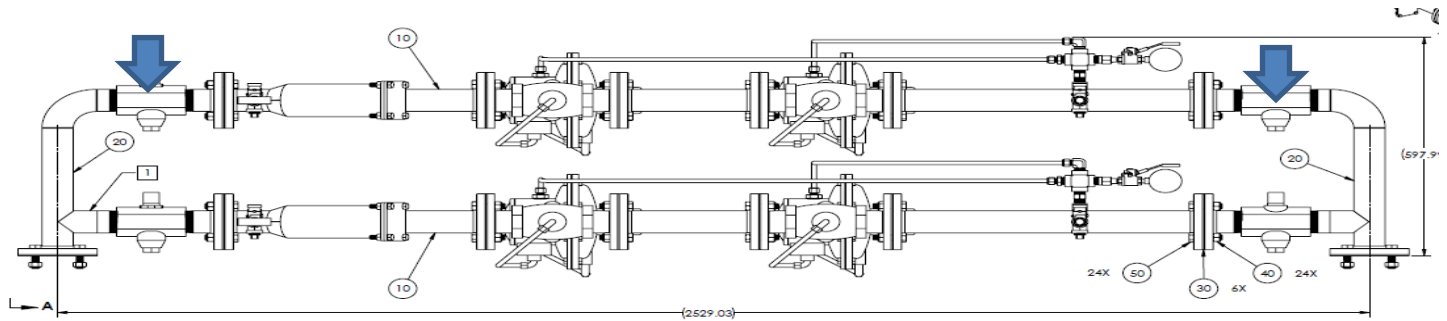


Figure 16

Section C: Process closeout

1. Restore system Conditions

- 1.1. Turn off the air compressor
- 1.2. Isolate the test equipment from the system
- 1.3. Remove all test equipment
 - 1.3.1. Air Compressor
 - 1.3.2. Purge Hose
- 1.4. Close all fuel stub up valves and reconnect YFP to fuel stub up
- 1.5. Leave meter isolation valves open
 - 1.5.1. If dual parallel, leave only one set open, isolate the second set

Version History

Revision	Date	Process Owner	Change Description	Training Required
A		Andy Blakeslee	Initial Release	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
A	4/27/17	Shane Peters	Reformatted into Standard Template, suggested edits	<input type="checkbox"/> Yes <input type="checkbox"/> No
A	6/8/17	Shane Peters	Thomas Sipe updates, with Shane's reformatting.	<input type="checkbox"/> Yes <input type="checkbox"/> No
A	2/20/18	Thomas Sipe	Split CDA, N2 and Moisture Sample	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No

Electronic Signature approvals are on file in Agile.

MODERN MECHANICAL SYSTEMS, INC.

April 19, 2023

Mr. Matt Tobin
O&G Industries
112 Wall ST.
Torrington, CT 06790

New Britain Fuel cell Project; CT DEEP Siting Council Compliance

Ref: Place in service Natural gas pipe system cleaning purge experience

Per your request we offer the following identification of personnel performing the work, including past projects experience and qualification to perform the work.

Project Oversight.

Jeffery Clement; CT licenses PLM.0277512-P1, HTG.0303543-S1

Site Specific:

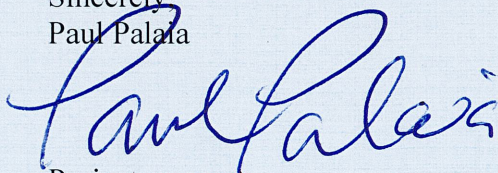
Jimmy Sokola, CT licenses PLM.0280716-P2, HTG.0353785-S2, OSHA 30
Scott Kaczmarek, CT license PLM.0277794-P2, OSHA 10

Past Projects:

Bradley International Airport; Consolidated Rental Car Facility
CT. Army National Guard: Camp Hartell Combined Support Maintenance Shop (CSMS)
CT. ANG Westbrook maintenance facility Gas pipe replacement
UCONN CSST Gas Pipe replacement Project
Bloom Energy Cells throughout CT
Fairfield University convocation Center
Fairfield University Dormitories 5ea
Fairfield University academic buildings. School of Nursing, School of Business
Fairfield University Student center and cafeteria
Fairfield Prep Xavier Hall Science center.

We will follow NFPA54, 56 and Bloom Energy gas system commissioning procedures.
We appreciate the opportunity to be involved with this significant project.

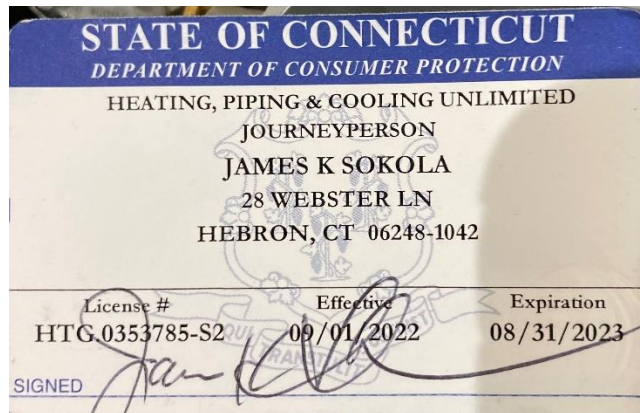
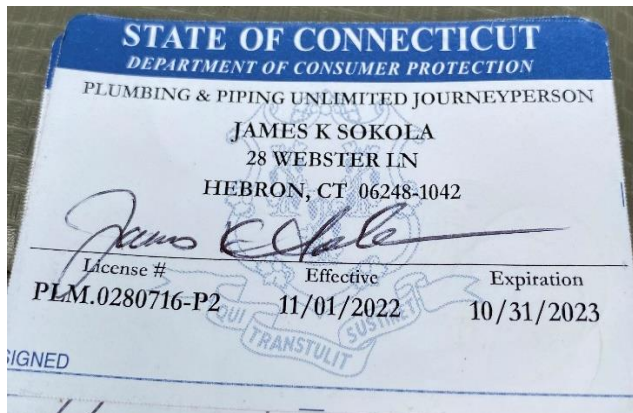
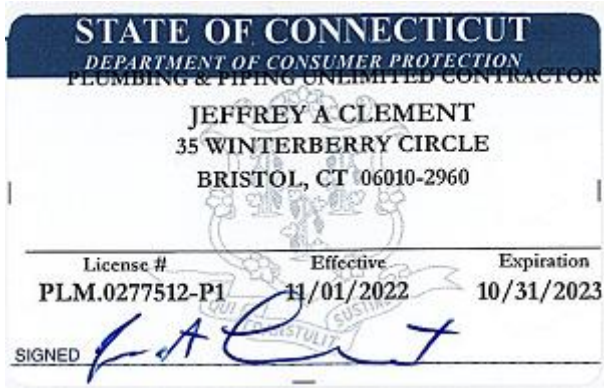
Sincerely,
Paul Palata



Project manger

MODERN MECHANICAL SYSTEMS, INC.

New Britain Fuel Cell; Competent persons for nitrogen purge



519 COOKE STREET P.O. BOX 492 FARMINGTON, CT 06034-0492
PHONE 860 / 677-2222 FAX 860 / 676-8305
HTG.0303543-S1 PLM.0277512-P1 HTG.0401564-ST1

Affirmative Action / An Equal Opportunity Employer



11-602001815

This card acknowledges that the recipient has successfully completed:

30-hour Construction Safety and Health

This card issued to:

James Sokola

Ruben Collazo

Trainer Name

6/22/2016

Date of Issue



State of Connecticut
CT Department of Labor

Scott Kaczmzrek

Has successfully completed a supplemental 4 HR Refresher on Construction Safety as per requirements on Section 31-53b-1 as amended 11/2015

Joseph Pellecchia
OSHA Auth. Trainer

21-0106485 –
Exp.03/2027



James K. Sokola

has successfully completed

*Supplemental 4 Hour Refresher
Construction Safety Outreach Course*

Completion Date on June 5, 2021

35A Robert Jackson Way, Plainville, CT.

"As an OSHA authorized trainer in good standing, I verify that I have conducted this Supplemental 4 Hour Refresher Training Course in accordance with State of Connecticut Regulation Section 31-53b-1 thru 5, as amended. I have also verified that the person named above is a Licensed Electrician and/or Plumber in the State of Connecticut and holds an OSHA 10HR Construction Safety and Health Card issued by a Federal Occupational Safety and Health Administration authorized trainer. This Certificate is valid for the State of Connecticut.

Joseph Pellecchia

Joseph Pellecchia
Construction Safety & Health Trainer 21-0106485

Marci K. Addy

Marci K. Addy
Education Director

Richard Gregoire, P.E.
Principal
Project Manager



Experience:

Mr. Gregoire holds a Masters Degree in Chemical Engineering with over 25 years of experience in specialty & hazardous chemicals, solids handling, pharmaceutical, bio-pharmaceutical, high purity systems, environmental and polymer industries. His background encompasses the full range of process engineering activities, code and safety reviews / evaluations, as well as project engineering and business development work at several major engineering firms. Mr. Gregoire has lectured at Interphex on "Controlling Solvent Emissions from Process Vents". He is a registered Professional Engineer in 13 U.S. states. He is also a registered NCEES member. Mr. Gregoire has responsibility for various process/project engineering activities and technical leadership at **IDEA**.

RELEVANT PROJECTS:

Fuel Cell Gas Line Purge Special Inspections

Witness and Special Inspections of various pre-start-up fuel line purges using nitrogen for A/Z Corp., ENCON and Bloom Energy.

Generation Bridge II, LLC

New Haven Harbor Power Station, New Haven, CT

Fuel Oil Dock engineering services including preparation of Electrical Area Classification Maps at barge dock.

Bedoukian Research, Inc. – Danbury, CT

500 gal. Still System - Schematic Design Package for a 45' high process structure including 2 reactors/stills, condensers and associated support systems.

Vent KO Tank Project – 200 gal. Vent KO Tank detailed design to decouple relief and vent header systems.

Safety and Environmental Upgrade Project – Evaluation and design for 13 reactor/vessel systems involving relief system upgrades and N₂ padding modifications for enhanced safety and environmental control.

Synthetic chemistry scale-up project including bulk solids addition system, reactor & overheads system and high alloy vertical axis, top discharge centrifuge.

A/Z Corporation – Stamford, CT

Fuel Cell Gas Line Purge Witness

Co-witness to a Special Inspection for several Bloom energy fuel cell gas line purges at NBC Sports Group in Stamford, CT

Rust-Oleum – Attleboro, MA

PHA Addendum Safety Review including flammable liquids, combustible dust, equipment, electrical classification, containment and egress reviews.

BD Biosciences – Miami, FL

Advanced Bioprocessing Media Manufacturing Facility Solids Processing Lines - Weighing/Dispensing, N₂ Recycle Milling System, Blending, Multiple Container Size Packaging System. Liquids Processing Line – Up to 3000L compounding, Bulk and Bottle Sterile Filling Lines Utilities expansion including a new WPI POU's and a new UPW sub-loop.

Hamilton Sundstrand – Windsor Locks, CT

Advanced Pneumatic Testing Lab Project with state-of-the-art controls and utilities including -70° to 800°F pneumatic temperature capabilities.

ASPEN AEROGELS – E. Providence, RI

Facility RTO and dust/fume scrubber systems for misc. process and drying ovens emission & fume environmental control.

Boston University Medical Center – Boston, MA

Commissioning of a national emerging infectious diseases laboratory and research center consisting of a seven (7) story building (194,000 sq. ft.) with Biosafety Level 2, 3, and 4 Laboratories, associated MEP systems and administrative offices.

U.S. Surgical Corp. (div. of TYCO Healthcare) – North Haven, CT

Monomer area expansion of cracking reactor, crystallizer & solvent recovery systems including hot oil & steam utilities studies.

Sandoz Pharmaceuticals - East Hanover, NJ

Environmental summary package for a state-of-the-art solvent recovery system.
Comparison study of various fluid bed and pan coater systems for a solids dosage development facility.

Lockheed Martin / Sikorsky – Stratford, CT
Multiple PHA reviews including flammable liquids, autoclaves, steam systems, as well as as-builts of applicable processes.

RAS-TECH – Brentwood, NH
Dust safety and process code study for a recycle asphalt shingle process.

MACDERMID ENTHONE – West Haven, CT
Multiple specialty high purity process upgrades.
Site utilities as-builts.

King Industries – Norwalk, CT
Code and Engineering Evaluation reviews for a new grass roots Specialty Chemical Manufacturing Facility.

The Lee Company – Westbrook, CT
Utilities upgrades, fume and dust safety studies.

DSM Pharmaceuticals – Greenville, NC
Major pharmaceuticals Dust Remediation Safety Study including code reviews, evaluations and estimates for 95+ Dust Collector systems.

Confidential Client – Long Island, NY
Agent for insurance investigations and code reviews pertaining to a dust collector system metal dust fire.

BALCHEM Corporation – Slate Hill, NY
Nutraceutical Encapsulation Process blending, cooling and conveying study.

NEXEO SOLUTIONS – Various Corporate Sites
Flammable bulk chemical and EH&S upgrade projects including ventilation, submerged fill & bottom loading.

BALCHEM Corporation – Slate Hill, NY
Probiotics & Flavor Containment Area Study
Wyeth-Ayerst - Rouses Point, NY.
Solvent recovery and tank farm expansion
Chem. development facility emissions reduction project
Granulation and fluid bed drying expansion projects (3)
Chemical development expansion
Solvent emissions control and plant utilities upgrade
Solvent emissions reduction scheme for a pharma spray drying process including permitting assistance.
Solvent coating system estimate package.

Sabic Innovative Plastics - Mt. Vernon, IN
Specials solids handling BEP including supersack unloading, recycle N2 solids transfer, solids storage, and batch weigh systems.

Procter & Gamble Pharmaceuticals – Norwich, NY
Hydrazine Analyzer Project
Reactor Chiller Installation

Sterling Pharmaceuticals, Inc. - Barceloneta, PR
Bulk pharmaceutical expansion project
Debottlenecking study and estimate for an existing, fine organic chemical manufacturing facility.
Hi purity water system and SIP for tumble dryer system.

Wyeth BioPharma - Andover, MA
Biopharmaceutical advanced development facility
field commissioning lead for 35 field engineers.

Wyeth-Ayerst - Montreal, Canada
Chemical development expansion

Merial, Ltd. – Athens, GA
Bio-pharmaceutical animal health facility - Site Utilities & Master Plan Scoping

GE Plastics – Burkville, AL
Lexan Facility Major Capacity Expansions

FMC Corporation - Baltimore, MD
Herbicide plant retrofit including wiped film still.

General Electric Company - Waterford, NY.
Silicone polymer plant capacity stretch.
Grassroots silicone polymer project definitive estimate.

General Electric Company - South Korea.
Multi-product polymer compounding facility

General Electric (GEM Polymers) - Osaka, Japan
Basic engineering package for a PPO facility.

Arch Chemical – North Kingston, RI
New HP Photo Resist Facility

GE Plastics - Mt. Vernon, IN
Specialty resin and resin drying system expansion
Specialty Resin CIP System with first-of-a-kind equipment.
Haz-Op and Dryer Focus Team
Bulk/specialty compounding and pkg. facility expansion
Solvent recovery revamp to reduce Methylene Chloride in wastewaters
Solvent recovery pilot plant
Methylene Chloride Loss Reduction Project
Phosgene Capacity Study

Olin Microelectronic Materials - Quonset Point, RI
High Purity Bulk Electronics Chemicals Facility incl. Packaging, High Purity Chemical Reactor & Vacuum Still System

Plaskon Electronics Materials, Ltd. (subsidiary of Rohm & Haas, Inc.) Jurong, Singapore.

Plant operating procedures with subsequent computer sequence descriptions, system startup and debugging of an electronics grade epoxy molding compound plant
Specialty chemical debottlenecking and start-up

Pfizer Inc. - Groton, CT

Refrigeration retrofit estimate & const. sequencing pkg.
Vent emissions calculation packages and end-of-line device evaluations including estimates.

Nycomed Amersham - Rensselaer, NY

Bulk Chem. Retrofit Conceptual Design Pkg. & Estimate
Pilot Plant Upgrades & Modifications

Analog Devices - Wilmington, MA

Wafer Fabrication Facility
Utilities Retrofit
Multiple Chilled Water System Integration

Syntex – Springfield, MO

Bulk Chemical Upgrade
Vent Emissions & Thermal Oxidizer Project
Cities Service Company - Mont Belvieu, TX
Natural gas liquids fractionation plant.

Searle Food Resources, Inc. - Augusta, GA

ASPERTAME (NUTRASWEET) product recov. system.
Static Cryst. simulation. Site waste treatment facility

Harris/Fairchild Semiconductor - Mountaintop, PA

HP Chemical Distribution Systems

Sanders – Nashua, NH

Piping & utilities systems modifications and documentation.

Shell Oil Company - Argo, IL

Batch custom resin solutions plant

MAJOR CAREER ASSIGNMENTS:

IDEA, Inc., Milford, CT

Principal / Manager, Process Engineering

SKANSKA E&C, Shelton, CT (formerly CPI PLANTS, Inc.)

Manager, Process Engineering
Process Manager
Senior Process Engineer

KVAERNER / JOHN BROWN E&C (formerly CRAWFORD & RUSSELL, INC.), Stamford, CT)

Process Engineer

EDUCATION:

RENSELAER POLYTECHNIC INSTITUTE

B.S., Chemical Engineering - 1978

MANHATTAN COLLEGE

M.S., Chemical Engineering - 1983

SOCIETIES:

American Institute of Chemical Engineers; International Society for Pharmaceutical Engineering

LICENSES:

Licensed Professional Engineer, States of Connecticut, New York, Massachusetts, Rhode Island, Vermont, New Hampshire, Maine, Texas, California, North Carolina, Florida, Virginia and Arizona.

NCEES Registered Professional Engineer

PUBLICATIONS:

ISPE course leader for a workshop entitled "Controlling Solvent Emissions from Process Vents"