

# FORCON INTERNATIONAL

**WILLIAM "BILL" B. ARTHUR, PE**

## **SUMMARY**

Mr. Arthur has a wide variety of experience in mechanical process engineering and project management for manufacturing and industrial facilities. Examples of his wide-ranging expertise includes the mechanical design of fume capture systems, flammable gas refrigerant systems, HDPE plastic extrusion systems, explosive dust collections systems, chemical piping and many more. This wide variety of experience with industrial processes enables him to readily assess causation, extent of damage, scope of repair, and cost of repair for these types of systems. He is a Licensed Professional Engineer in 24 states, is a Naval Academy graduate and former marine.

## **EDUCATION**

Master of Science in Mechanical Engineering; University of South Alabama, 2010

Bachelor of Science in Mechanical Engineering; United States Naval Academy, 1999

## **REGISTRATIONS & CERTIFICATIONS**

Licensed Professional Engineer in the following States:

- |                  |                 |                |                  |               |
|------------------|-----------------|----------------|------------------|---------------|
| ○ Alabama        | ○ Arkansas      | ○ Florida      | ○ Georgia        | ○ Idaho       |
| ○ Iowa           | ○ Indiana       | ○ Kansas       | ○ Kentucky       | ○ Louisiana   |
| ○ Maryland       | ○ Massachusetts | ○ Michigan     | ○ Missouri       | ○ Mississippi |
| ○ North Carolina | ○ Oklahoma      | ○ Pennsylvania | ○ South Carolina | ○ Texas       |
| ○ Tennessee      | ○ Utah          | ○ Virginia     | ○ Wisconsin      |               |

Private Pilot, Aircraft Single Engine Land 2017; Instrument rating 2023; Part 107 UAS (Drone) Operator 2021

## **PROFESSIONAL ASSOCIATIONS**

The National Fire Protection Association (NFPA)

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)

National Society of Professional Engineers

The American Society of Mechanical Engineers

## **CONTINUING EDUCATION**

Additional Courses and Certifications completed in the following areas:

- Greenheck HVAC Training
- Caesar II Pipe Stress Analysis
- Ammonia Refrigeration Operator 1, Garden City, KS Community College
- Energy Management-1 continuing education, NC State University
- Marine Corps Supply Officers Course (3002 MOS) and Comptrollers Courses (3404 MOS)
- Marine Corps Officer's Training "The Basic School", Quantico

## **CAREER HISTORY**

### **Forcon International – Mechanical Process Engineer**

Conducting forensic investigations and providing expert witness services as it relates to his fields of expertise.

### **Arthur Engineering, LLC – President, Principal Engineer and Project Manager**

Engineering firm specializing in mechanical process engineering and project management for manufacturing and industrial clients. Managed multi-discipline engineering projects of up to \$65 Million total installed cost (TIC) using organic and subcontracted engineering resources. Performed process engineering including PFD and P&ID

# FORCON INTERNATIONAL

development, process descriptions and industrial hygiene fume capture calculations in addition to mechanical equipment, systems, piping, ductwork and material handling.

## **Hargrove Engineers & Constructors**

- **Project Manager** (Savannah, GA) – Managed multi-discipline projects including process improvements, retrofits, green-field and brown-field new plant installations. Responsible for projects from project conception, detailed design, procurement, construction support and start up phases. Created schedules, work break down structures, cost control and status reports. Directed engineering for multi-discipline team of civil, structural, mechanical, process, electrical & instrumentation and automation engineers and designers. Largest single project involved over 20,000 man-hours in the detail design engineering phase alone.
- **Mechanical/Piping/Process Engineering Supervisor** (Savannah, GA) – Lead Engineer and PE of record for numerous projects. Supervised process and P&ID development, construction scope of work and drawings, equipment specifications for dust and fume collection, thermal oxidizers, process and utility piping, air compressors, pneumatic conveying, HVAC, control room pressurization, fire suppression and sprinklers, pipe stress analysis, hydraulic and pressure loss calculations, pressure relief device sizing and validation, hot oil, steam and asphalt piping, tanks and silos, cooling towers, filters, air/oil coolers, heat exchangers, boiler installations, diesel generators and food processing ventilation and HVAC design.
- **Mechanical Engineer** (Mobile, AL) – Performed HVAC and control room pressurization calculations, specified equipment, directed and reviewed ductwork drawings. Specified ASME and API 650 tanks, firewater pumps, jockey pumps both electric and steam driven, fire suppression systems, pneumatic solids conveying equipment including hoppers, blowers, blenders, screeners, rotary valves and bin vents. Designed fuel and utility systems for indoor diesel generator installations.

## **Northrop Grumman Shipbuilding (Pascagoula MS) - Mechanical / Marine Engineer**

- Lead Engineer for a project that successfully replaced the defective crankshaft on the LPD-21's main propulsion diesel engine. Worked with the engine manufacturer, customer and engineering team to develop the plan and technical specification document used for the contract. Lead Engineer on site, provided technical direction to subcontractors to ensure technical correctness, safety and schedule adherence for this high visibility project.
- On site engineering and leadership of project to replace lube oil piping and engine overhaul on the LPD-21.
- Designed HVAC systems for shipboard use. Provided direction and support to the detailed design group and approved final design drawings. Design case studies with estimates based on HVAC calculations.
- Developed machinery arrangement of major equipment (chillers, tanks, heat exchangers) in the machinery spaces for a new ship proposal.

## **Prestage Foods, Inc (Saint Pauls, NC) - Facility Engineer**

Managed wastewater treatment, ammonia refrigeration, parts room and facilities maintenance for a 550-acre turkey processing plant, which processed 45,000 birds daily. Worked with switchgear, 600 Hp ammonia compressors and equipment, wastewater and freshwater pumps, air compressors, hydraulic and electric motors, boilers, blowers, gearboxes, augers, conveyors and poultry processing equipment. Managed several projects from process improvements to new electrical service installation and new offal waste room design.

## **US Marine Corps Reserve (Al Anbar Province, Iraq) - Logistics Officer (S-4, 6th CAG), Captain,**

Managed all supply, financial and logistics operations for 195 Marine Reserve unit deployed to Iraq.

## **Northrop Grumman Shipbuilding (Pascagoula, MS) - Project Engineer, Reliability**

Performed reliability engineering and modeling of the main propulsion, auxiliary systems and electrical distribution systems for the DDX surface ship design. Conducted evaluations of the medium voltage power, converters, inverters, permanent magnet and induction motors and auxiliary systems which included pumps, chillers, heat exchangers, degaussing and corrosion control systems.

## **US Marine Corps (Camp Lejeune, NC) - Supply and Fiscal Officer, Captain**

Managed all procurement and financial expenditures for the command. Developed and executed project budgets and plans. Accounted for \$60 Million inventory and controlled \$3.6 Million annual budget.

## HIGHLIGHTED PROJECTS

The following is a sample of Projects completed with Arthur Engineering:

- Specified tanks, heat exchangers, pumps, piping and other equipment for a plant expansion. The process included a mixing tank, slurry transfer, two reactors and centrifuges. Produced all pipe plans and isometrics, PFD's and P&IDs, instrument list and equipment list with an overall project budget for the client.
- Performed full HVAC design for a new room to be built around an existing medium voltage switchgear station and MCC room inside an existing automotive paint shop building. The design included chilled water and direct expansion equipment, and very high HVAC loads.
- HVAC and plumbing design for a renovation for factory locker room, break room and office building.
- Produced process flow diagrams for air permitting for two mines that produce granules for the roofing industry based on field observations and reviews of existing documentation.
- Multiple projects in TX, TN, KY, AL, CO, VA & IA – Process & mechanical engineering for flammable gas refrigerant bulk systems installed in refrigeration equipment manufacturing plants. Produced area classification drawings, designed tanks, piping systems, make up air and exhaust systems. Performed code analysis and designed for safe operation for many different A2L and A3 refrigerants.
- Rock Hill, MD – Produced an area classification study for a pilot plant operation for a pharmaceutical company.
- New Columbia, PA - Designed a new HDPE plastic extrusion plant in a brown field site. Lead over 30,000 man-hours of engineering for this project from the feasibility study through commissioning.
- New Columbia, PA - Designed a new polyiso foam insulation plant design on a green field site. Wrote detailed design build specifications for a 250,000 sqft building and engineered the dust and fume collection system, piping systems and all support systems for the main process equipment including natural gas, explosive dust collection, regenerative thermal oxidizer, nitrogen, compressed air and steam.
- Cedar City, UT - Engineering and project management for PVC extrusion production line. Preliminary engineering, detailed design and construction management. Involved piping, fume and dust collection, material handling (pneumatic conveying), new silos, equipment arrangements and equipment specifications.
- Multiple projects to install regenerative thermal oxidizers in factories and shingle plants. Includes sizing and specifying the equipment as well as installation drawings for the piping, ductwork and support systems. Includes process flow diagrams and P&IDs, air, steam, water and natural gas piping, industrial ductwork and equipment general arrangements using 3-D laser scan (point-cloud).
- Brunswick and Savannah, GA – Performed engineering for piping installation projects with hot product piping. Designed tanks and relief devices, pipe stress analysis and piping design.
- Asphalt terminal & refinery miscellaneous projects with asphalt terminals, shingle plants and an asphalt refinery.
- Specialty HVAC projects for lab exhausts, fume collection and HVAC.
- Industrial heating project with large make-up air and unit heaters.
- Multiple 3D piping design projects in chemical plants. Used laser scan technology and 3-D modeling to create highly accurate piping isometrics which were used to shop fab piping for quicker installations.
- Preliminary engineering for a metal forming and coating project.
- Area classification studies and dust hazard analysis.
- Multiple mechanical and piping drawings for commercial buildings.

The following is a sample of Projects completed with Hargrove Engineers & Constructors:

- GAF ISO-1 Plant and Cornell expansion, Statesboro, GA – Brownfield site, new plant construction.
- GAF ISO-2 Plant, Gainesville, TX – Greenfield site, new plant construction. Preliminary engineering through start up.
- GAF TPO / ISO-3 Plant, Cedar City, UT – Brownfield site, 2 new plants. Preliminary engineering through start up.
- LBC Tank Terminal, Houston TX – On site PM and Mechanical Engineer for multiple projects involving pipelines, ship, truck and barge docks, new tank installations, heaters, pumps and associated systems for petroleum products.
- NuStar Energy – Multiple projects and locations, tank nitrogen blanketing system design.

# FORCON INTERNATIONAL

- Arizona Chemicals, Savannah GA – Numerous projects including PSM P&ID Validations, Crude Tank installations, Pump, cooling tower and heat exchanger installations, pipe stress analysis and process piping installation projects.
- BASF, Savannah, GA – Multiple projects including PSM P&ID validation and tank, piping and equipment installations.
- Ergon Terminal, Newell, WV – HVAC & pressurization for refinery control room.
- Chicken of the Sea, Lyons, GA - Food processing HVAC projects.
- SNF Floquip, Riceboro, GA - Auger and equipment skid design.
- OXYChem, Augusta, GA – Waste heat boiler bypass ducting and thermal analysis.