**Nathaniel C Horn**

Nathanielchorn@nchsande.com  (802)526-2242  Panama City, FL

**WORK EXPERIENCE**

**Battelle (Fire Research R&D Division) AUG 2020 – JUN 2023**

*Chemical Engineer I Tyndall, AFB*

* Amplified data interpretation accuracy by 30% using Excel, MATLAB, Python, and Ruby, leading to data-driven decision-making.
* Enhanced comprehension of complex data by developing comprehensive reports, resulting in informed decisions by stakeholders.
* Improved project accuracy and timeliness by conducting extensive research on fire protection systems and handling multiple concurrent projects.
* Reduced wastewater by 40% through innovative system designs in SolidWorks and AutoCAD, enhancing environmental sustainability.
* Expedited project completion by fostering efficient collaboration with a diverse team of professionals, drawing on a wide range of expertise.
* Ensured 100% compliance with safety and quality standards in all processes and designs, adhering to both local and national regulations.
* Expanded research opportunities by consistently performing literature reviews and staying updated on trends in chemical engineering.
* Successfully managed projects from planning to closure, resulting in optimal resource allocation and risk mitigation.
* Secured funding for multiple projects by assisting in proposal writing and clearly articulating project objectives and impacts.
* Ensured smooth progress of projects by overseeing and escorting visitors and subcontractors.
* Facilitated professional growth of junior staff by training and mentoring, sharing technical expertise and industry insights.
* Reorganized the structure and organization of planning trials and paper submissions, increasing efficiency by 20%.

**Freudenberg (Rubber and Gaskets Division) JAN 2019 – AUG 2020**

*Chemical Process Engineer I Bristol, NH*

* Streamlined three key processes – phosphate coating, adhesive application, and post-treatment, resulting in an efficient operational flow.
* Boosted operational efficiency and product quality by proactively diagnosing and resolving technical or process-related issues.
* Introduced and refined processing methods for 50+ products, optimizing procedures and employing innovative strategies for adherence to product specifications and industry standards.
* Optimized operational efficiency using advanced analytics tools like Excel, Python, and Power BI, leading to tangible process improvements.
* Elevated system efficiency and tracking capabilities, contributing to significant productivity gains and cost savings.
* Facilitated specialized orders and issue resolution by collaborating with various departments, expediting prototype development.
* Fostered seamless project execution by enhancing interdepartmental communication and collaboration.
* Ensured customer-centric product development by engaging directly with customers to discuss upcoming projects.
* Secured repeat business and customer satisfaction by understanding and incorporating customer needs into product development.
* Reduced waste and improved yield by refining process parameters using empirical and data-driven approaches, implementing lean manufacturing principles.
* Ensured product consistency and compliance by participating in the development and implementation of quality control protocols.
* Proposed and implemented new technologies, keeping abreast of the latest advancements in chemical engineering, to maintain competitiveness and enhance production outcomes.
* Ensured a safe and compliant work environment by strictly adhering to safety procedures and regulatory requirements in all processes.
* Facilitated professional growth of junior staff and interns by sharing technical expertise and industry insights.

**INTERNSHIP EXPERIENCE**

**LONZA Biologic APR 2017 – AUG 2017**

*Manufacturing Engineer Intern Portsmouth, NH*

* Engaged in the manufacturing process of low-demand liquid medications, meticulously adhering to standard operating procedures to ensure product quality and compliance with regulatory requirements.
* Operated within a clean room environment, maintaining high standards of cleanliness and hygiene to prevent any potential contamination and to meet strict industry standards.
* Performed gowning and de-gowning procedures accurately and efficiently to maintain the sterility of the clean room and prevent product contamination.
* Assisted in monitoring and ensuring the quality of medications produced, contributing to the ongoing compliance with industry regulations and standards.
* Operated various manufacturing equipment safely and effectively, contributing to the successful production of pharmaceutical products.
* Assisted with recording and maintaining manufacturing records, ensuring full traceability of products.
* Collaborated with multidisciplinary teams, including Quality Control and Regulatory Affairs, to ensure compliance and efficiency in the production process.
* Identified areas for process improvement and proposed recommendations to increase efficiency and maintain the highest quality standards.
* Underwent comprehensive training in Good Manufacturing Practices (GMP) and other critical pharmaceutical manufacturing practices.

**Ink Mill APR 2016 – AUG 2016**

*Chemical Engineer Intern Tilton, NH*

* Assisted in developing a specialized ink for use within the food industry, including formulation, testing, upscaling, and refinement processes.
* Supported quality control efforts to ensure all inks met the necessary standards and specifications. This included conducting tests and recording results.
* Assisted in producing custom inks, ensuring that orders were completed accurately and on time.
* Worked on specialized orders, ensuring customer requirements were met regarding ink specifications and delivery deadlines.
* Assisted in packaging products, ensuring they were correctly and safely packaged for shipment.
* Performed age testing on inks to assess their longevity and stability.
* Conducted surface testing to understand how different inks interacted with various surfaces, providing essential data for product development and quality control.
* Assisted in managing and stocking chemicals used in ink production, ensuring that safety and inventory control procedures were followed.
* Collaborated with multiple departments within the company, including development, production, and quality control, to achieve company objectives and deliver customer satisfaction.

**VOLUNTEER EXPERIENCE**

**Appellation Mountain Trail Crew AUG 2010 – SEP 2010**

*Base Trail Crew Greenville, ME*

* Constructed and maintained parts of the Appalachian Trail. This can involve building steps, installing drainage structures, or cutting and moving large rocks and trees.
* Maintain the sustainability of the trail. Volunteers are expected to assist in erosion control efforts, including building water bars, check dams, and causeways
* Volunteers help with improving campsites along the trail. This can include creating or maintaining tent platforms, shelters, or privies
* managing vegetation along the trail to maintain a clear pathway. This could require the use of tools such as saws or brush cutters
* assist with general trail work, such as repairing Treadway, clearing trail corridors, or removing fallen trees and debris
* help educate the public about the trail, its history, and its conservation. This can involve public speaking, guided hikes, or teaching sessions
* prioritize safety, both for themselves and others. This involves following all safety protocols, using tools and equipment properly, and reporting any hazards or issues promptly
* live and work together in close quarters for extended periods, so volunteers need to work well with others, participate fully in all crew activities, and maintain a positive and respectful attitude

**Wilmot Fire Department SEP 2010 – SEP 2020**

*EMT/Fire Fighter Wilmot, NH*

* Responding to fires, accidents, and other incidents where risks are posed to life and property.
* Respond to emergencies and provide immediate care for life-threatening injuries. Control bleeding, administer epinephrine to patients with severe allergic reactions, and perform other basic emergency medical procedures.
* Responsible for connecting hoses to hydrants, operating firetrucks, climbing ladders, and using tools to break through debris.
* Regularly inspect equipment and perform practice drills.
* Perform public safety initiatives by educating on safety practices or presenting information.
* Assess a patient’s condition and assist in patient decisions on further action.
* Provide first-aid treatment or life support care to sick or injured patients.
* Transport patients safely in an ambulance to the emergency department of a hospital or other healthcare facility.
* Report observations and treatment to physicians, nurses, or other healthcare facility staff. Document all calls on the actions taken to aid, treatment, resolution, and transportation.

**EDUCATION**

**University of New Hampshire**

*BS, Chemical Engineering Durham, NH*

* Our team was awarded first place in the AICHE Chemical Engineering senior design competition.

**CERTIFICATIONS, SKILLS & INTERESTS**

* **Certifications:** AIChE Process Safety I & II, AIChE Risk Assessment, AIChE Runaway Reactions, AIChE Chemical Process Safety, AIChE Dust Explosion Control, AIChE Hazards & Risk I & II, AIChE Process Safety Hazards I & II, Security Clearance, Open Water Diver (PADI), Notary (FL), EMT-B (expired), CPR,
* **Skills:** Project Management; Team Collaboration and Leadership; Technical Expertise: SCBA, Distillation, Liquid Filtration, Mixing, Reactors, Phosphating Coating, Adhesive Applicating, Oven, Injection Molding, Dry and Wet pipe Fire protection systems, Fire Trucks, CAFS Systems, UHP Systems, ARFF Systems, Sprinkler Systems, Trench Drain Fire Suppression Systems, Dry Chemical Fire Suppression Systems, Programming and Data Analysis;Python, Java, SQL, MATLAB, Excel, Ruby, Visual Basic, Minitab, JMP, Microsoft Office; Access, Word, Outlook, OneNote, PowerPoint, Publisher, Project, Teams, Visio, Design; AutoCAD, Solid Works, Sketchup, Visio, CHEMCAD, Laws/Regulations; NEPA, CAA, NFPA, UFC, FL Certification, UL Certification, cGMP, EU GMP, EC No 726/2004, FD&C Act, PHS Act, Title 21 CFR, HIPPA, EMTALA, PCRL (Patient Consent and Refusal Laws), CEAL (Child and Elder Abuse Laws), Training; Literature review, Paper Publication, Patent Publication, CPR, Fire Extinguisher, Fire truck operation, Cyber security, Total force protection, GMP, SOP, aseptic gowning, Equipment Operation and Maintenance, Quality Control and Assurance, Close Quarters training, Latter Training, SCBA, Fire 1 (No Certification), Wild-land fire (No Certification), Water and soil sampling, Problem-solving tools; Six Sigma, RedX, Scientific Method, Lean Manufacturing, Kaizen, 5 Whys, PDCA (Plan-Do-Check-Act), TRIZ (Theory of Inventive Problem Solving), Pareto Analysis (80/20 Rule)

**PUBLICATIONS**

* **Fuel Spill Fire Testing of an Ignitable Drain Floor Assembly for Chemical – Free Fire Control**  
  DTIC Accession Number: AD1168510 April 2022