

Muthukrishnan Anand

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Professional Summary

Process engineer with 5 years' experience in operations at ExxonMobil — exception-based surveillance and monitoring, process simulations and optimization across upstream assets. Currently pursuing a master's degree investigating process intensification of adsorption-based carbon capture. Looking to apply process engineering and research experience to process scale-up roles.

Work Experience

Process engineer, ExxonMobil Canada Energy, St. John's, Canada

Dec 2022 – Aug 2024

Onsite technical support for Hebron operations: Process monitoring and optimization, troubleshooting and asset modifications.

- **Led USD 1.7M** project to remediate MPG#A exhaust stacks on Hebron, collaborated with cross-functional teams to assess stack health and implemented risk-based remediation strategies. Updated existing design and fabrication requirements, managed the scope from definition through to offshore execution.
- **Mitigated asset risk worth USD 11.7M** by implementing a risk-based maintenance and sparing strategy for control valves at Hibernia. Assessed process impact based on valve failures from historical data, optimizing spares to maintain operational integrity.
- **Realized production uplift of 3.5kBD** by managing and executing viscosity reducing agent chemical trial offshore. Reduced offshore execution risk by implementing compatible hoses.
- **Commissioned and optimized** 3 phase level technology measurement system for Hebron (Electric Tomography), working in conjunction with subject matter experts and third-party vendor.

Process Surveillance Engineer, ExxonMobil GBC, Bengaluru, India

Jun 2019 – Nov 2022

Remote process support: Maximizing asset reliability and generating business value.

- **Process lead** for the cross-functional upstream maintenance transformation initiative for Hebron, achieving a reduction of **4,000 maintenance man-hours**. Conceptualized and implemented a methodology to quantify the process impact of key equipment, which was **adopted by all upstream business units**.
- **Reduced operating expenditure** by **USD 50k/yr.** by investigating tri-ethylene glycol losses and establishing baseline performance for the gas lift system using **Aspen HYSYS modelling** and optimization for Hibernia.
- **Minimized GHG emissions** by **30%** and **saved 2MW** in power through **HYSYS sensitivity analysis** for Bonny River Terminal.
- **Realized cumulative savings** of **USD 4.2M** from insights generated through anomaly detection and exception-based process monitoring for East Asia Platform.

Education

Master of Science (Thesis) – Chemical & Materials Engineering | University of Alberta Sep 2024 – Present

GPA: 3.9/4.0

Research: Performance evaluation of structured contactors for carbon capture using CALF-20 in Pressure Vacuum Swing Adsorption (PVSA) process.

Bachelor of Technology (Hon.) - Chemical Engineering | NIT Trichy, India

Aug 2015 – Jun 2019

GPA: 9.39/10

Thesis: Feasibility study on scale up of 2,5-Furan Di-Carboxylic Acid biopolymer production from lab to industrial scale – Heat and Material Balances, equipment sizing and cost estimates.

Skills

- **Process Simulation & Modelling:** Aspen HYSYS, HTRI and Promax
- **Programming:** Python, MATLAB, HTML and C++
- **Data Analytics:** SEEQ, SAS JMP, AVEVA PI and PowerBI

Achievements

- **University of Alberta Graduate Recruitment Scholarship** - 2024
 - **Capt. Thomas Farrell Greenhalgh Memorial Graduate Scholarship** - 2024
 - **Early Career Milestone (ECM)** - Process Engineering, ExxonMobil - 2022
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