REGNOLD CHINOWAITA

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PROFESSIONAL SUMMARY

Chemical and Process Engineer transitioning into Petroleum Engineering with a focus on Reservoir Fluid Mechanics and Sustainable Energy. Currently a Master's student and Teaching Assistant at the University of Oklahoma, providing technical instruction on Enhanced Oil Recovery (EOR) and flow in porous media. Skilled in experimental core flooding, process simulation (PIPESIM, MATLAB,), and plant optimization.

EDUCATION

University of Oklahoma | Norman, OK
Master of Science in Petroleum Engineering | Expected 2027

- Admission: Fall 2025
- Certifications: Graduate Certificate in Sustainable Energy Systems (Spring 2026)

National University of Science and Technology | Bulawayo, Zimbabwe
Bachelor of Science (Honors) in Chemical Engineering | 2023

- Grade: Upper Second Division (2.1)
- Relevant Coursework: Advanced Mineral Processing, Transport Phenomena, Process Dynamics and Control, Plant Design.

PROFESSIONAL EXPERIENCE

University of Oklahoma | Norman, OK
Graduate Teaching Assistant - Reservoir Fluid Mechanics Lab | **August 2025 – Present**
Instructs undergraduate students on experimental protocols regarding flow in porous media, wettability, and Enhanced Oil Recovery (EOR).

- Core Flooding & Permeability: Manages flooding stations comprised of core holders, pressure transducers, and positive displacement pumps to measure absolute and relative permeability.
- Data Analysis: Guides students in calculating Darcy and non-Darcy flow coefficients, analyzing high-velocity flow deviations, and determining porosity via matrix/bulk volume calculations.
- EOR Experiments: Oversees sand-pack preparation and saturation to simulate waterflooding and surfactant flooding mechanisms, measuring oil recovery factors and residual oil saturation.
- Fluid Properties: Operates advanced tensiometers/goniometers to measure surface tension, interfacial tension between crude oil/surfactants, and contact angles on silica surfaces.
- Safety & Operations: Ensures the safe handling of nitrogen cylinders, high-pressure systems (up to 1500 psig overburden pressure), and vacuum saturation lines.

Harare Water (Morton Jaffray Waterworks) | Harare, Zimbabwe
Production Engineering Intern | **Dec 2022 – Sept 2023**

- Collaborated with process engineers to implement process improvements, increasing throughput and water recovery efficiency by 18%.
- Analyzed energy consumption data and recommended improvements that reduced plant energy costs by 10%.
- Conducted process simulations and optimization for chemical production systems using Aspen Plus.
- Managed pump station operations, including pump inspection and drivers for energy reduction.

- Monitored clarifiers and multi-media filters to ensure efficient removal of suspended solids.

Harare Water (Quality Assurance Laboratory) | Harare, Zimbabwe
Quality Assurance Engineering Intern | **Sept 2022 – Dec 2022**

- Supported senior engineers in the design and commissioning of pilot-scale processing equipment.
- Tested the efficiency and compliance of water treatment chemicals and recommended dosing adjustments.
- Collaborated with the Environmental Management Agency (EMA) to mitigate industrial spillages and environmental pollution.

TECHNICAL SKILLS

- Lab Instrumentation: Core Flooding Apparatus, Tensiometer/Goniometer, Pycnometers, Positive Displacement Pumps, Pressure Transducers.
- Reservoir Engineering: Darcy's Law validation, Relative Permeability curves, Capillary Pressure, Wettability, Surfactant Flooding, Saturation determination (Dean-Stark/Weight method).
- Software: PIPESIM, MATLAB, Aspen Plus, AutoCAD.
- General Engineering: Process Optimization, Fluid Mechanics, Thermodynamics, Mass Transfer.

KEY PROJECTS

Design of a 2950 Tonne/Day Gold Bio-Leaching Processing Plant

- Led the design and development of a bio-leaching plant to extract gold from tailings.
- Designed solid-liquid separation methods and a comminution circuit to improve plant efficiency.
- Conducted detailed economic feasibility assessments to ensure commercial viability.

Water Treatment Optimization Project

- Utilized MATLAB to model different chemical dosing scenarios and their impact on water quality.
- Evaluated cost implications of alternative oxidants (H_2O_2 vs ClO_2) to reduce chemical expenses.

REFERENCES

Shapiro, Kathleen M. **CEL: 405/325-6821** **Email :** kshapiro@ou.edu
Academic Advisor Sr
University of Oklahoma (Mewbourne School of Petroleum and Geological Engineering)

Shiau, Benjamin **CEL: 405/325-6817** **Email :** bshiau@ou.edu
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