

Unit Operator

WHO ARE THEY?¹

Unit operators work at oil refineries, which are industrial plants where crude oil is processed and refined into petroleum products that the world can use—such as gasoline, diesel, jet fuel, and more. Unit operators oversee a specific section of a refinery to ensure it is operating safely, efficiently, and according to environmental regulations. Because refineries function around the clock, unit operators usually work in rotating shifts so an operator is always on duty. Unit operators work independently to make key decisions that keep the oil refinery working smoothly, and they also collaborate with other employees to operate and maintain the refinery's equipment and processes. Unit operators regularly work in a variety of indoor and outdoor conditions.

WHAT DO THEY DO? ^{1,2}

Unit operators supervise the flow of oil and petroleum products through pipes in their refinery. To do this, they manage control panels and equipment that regulate the temperature, pressure, flow rate, and tank levels in their unit. It is their job to ensure that the production is progressing according to schedule. Unit operators must also closely observe and inspect the equipment to identify warning signs before problems arise. To help ensure the quality of the product, they compile data and send product samples to laboratories for further testing. If system repairs are needed, the unit operator may be the one to perform the maintenance work or s/he may report it to a supervisor for additional assistance.

JOB OUTLOOK²

There are currently about 40,000 employees in petroleum operator positions in the United States. If you are interested in chemistry, mathematics, or engineering, and you enjoy working in hands-on environments to solve problems, this career may be appealing to you. Petroleum unit operators must also like the idea of working in a non-office setting, as this job requires time outside and potential exposure to hazardous conditions.

SALARY RANGE³

\$44,000–\$98,000

HOW DO I BECOME ONE?⁴

A unit operator needs a high school diploma and prior work experience. While an associate's degree or bachelor's degree is usually not required, higher education in STEM or technical education in a skilled trade would be beneficial to this position. To prepare for this career, students should focus on expanding their mechanical engineering and chemistry knowledge, as well as their math skills—including algebra, geometry, calculus, and statistics.

EDUCATION/TRAINING

- High school diploma or GED
 - Internships and/or apprenticeships
 - Associate's or bachelor's degree in a STEM field (not required)
 - Prior refinery work experience
 - On-the-job training upon hiring
1. Petroleum Refinery Operator." America's Job Exchange. <https://www.americasjobexchange.com/petroleum-refinery-operator-job-description>.
 2. "Summary Report for Petroleum Pump System Operators, Refinery Operators, and Gaugers." O-Net OnLine. <https://www.onetonline.org/link/summary/51-8093.00>.
 3. "Occupational Employment Statistics." Bureau of Labor Statistics. <https://www.bls.gov/oes/current/oes518093.htm>.
 4. "Oil and Gas Sector." Job Monkey. https://www.jobmonkey.com/oilindustry/refinery_control_operator/.