

OIL AND GAS



Careers in the oil and natural gas industry are diverse and vary in skill level and educational attainment. The industry, especially the shale oil and shale gas industry, is growing rapidly and employers are frequently in need of skilled men and women who can fill open positions.

Within the shale oil and natural gas industry, there are three industry segments: Upstream, Midstream and Downstream. These three segments refer to different points in the process of locating and extracting, collecting, and ultimately preparing the oil and natural gas for use.

UPSTREAM: Mapping potential well sites, leasing land, preparing land for drilling and drilling wells.

MIDSTREAM: Collecting, transporting and storing the oil and gas and marketing of various oil and natural gas products.

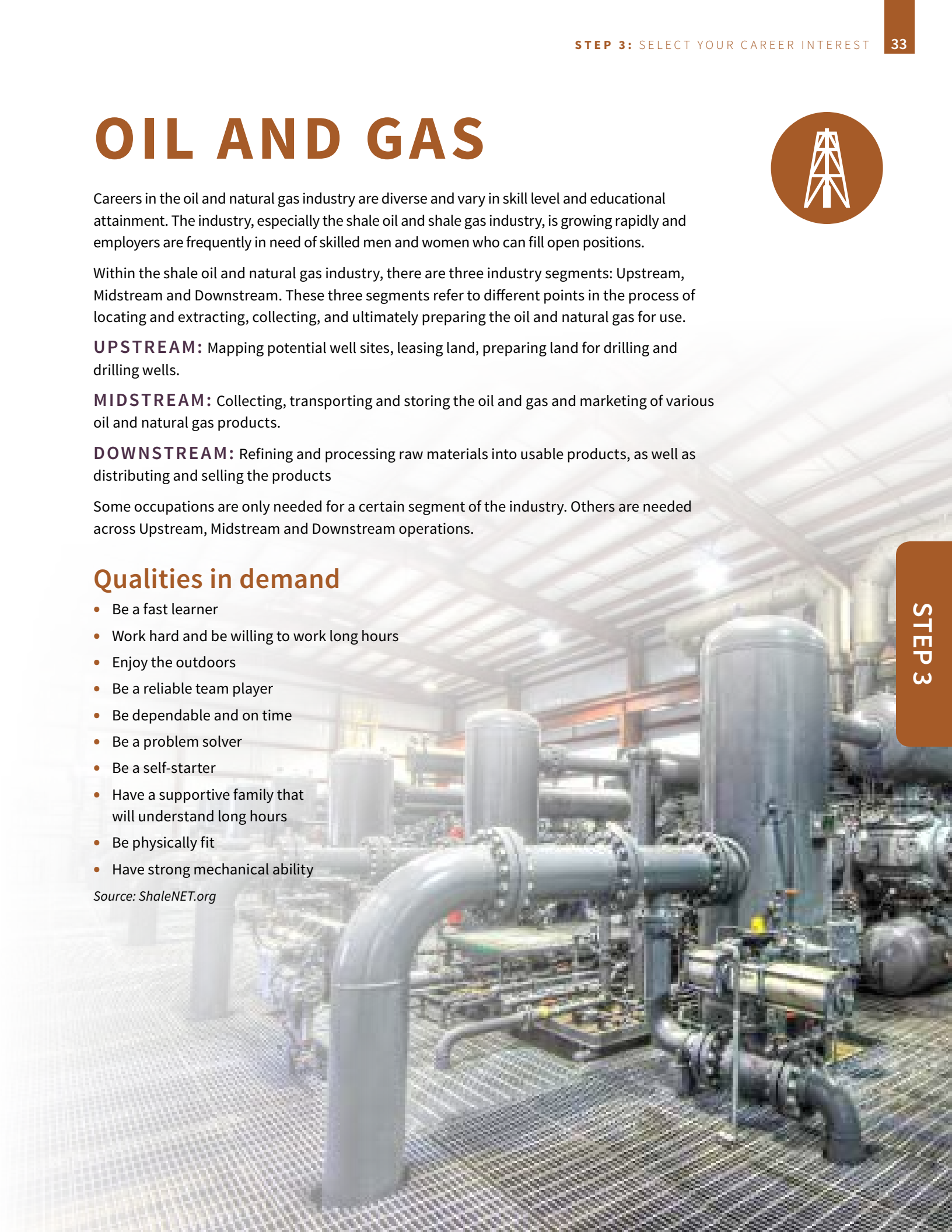
DOWNSTREAM: Refining and processing raw materials into usable products, as well as distributing and selling the products

Some occupations are only needed for a certain segment of the industry. Others are needed across Upstream, Midstream and Downstream operations.

Qualities in demand

- Be a fast learner
- Work hard and be willing to work long hours
- Enjoy the outdoors
- Be a reliable team player
- Be dependable and on time
- Be a problem solver
- Be a self-starter
- Have a supportive family that will understand long hours
- Be physically fit
- Have strong mechanical ability

Source: *ShaleNET.org*





Industry expectations

There are certain industry standards to be aware of before starting a career in the oil and natural gas industry.

**THINK
SAFETY
FIRST**

Safety awareness is a priority with employers.

Safety

SAFETY IS THE NUMBER ONE PRIORITY FOR EMPLOYERS IN THE OIL AND NATURAL GAS INDUSTRY and there are many regulations and standard practices in place to ensure a safe environment. Employees are required to wear personal protective clothing and equipment in many circumstances while on the job site. Additionally, employees **receive extensive safety training** so that everyone can identify potential problems and safely correct them. In certain occupations, workers could be exposed to hazardous materials, uncomfortable noise levels, and equipment that can be dangerous if not operated properly. Anyone considering or starting a career in the shale oil and shale natural gas industry should make safety a priority.

Drug testing

Because such an emphasis is placed on ensuring a safe environment, there is no tolerance for drug use in the industry. Drug testing during the hiring process and while employed is a universal practice within the industry. All individuals who are considering or pursuing a career in the oil and natural gas industry should expect to undergo routine drug testing.

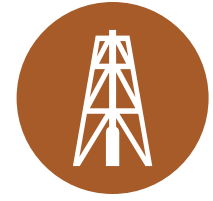
Working conditions

Working conditions in the oil and natural gas industry vary, but can be demanding. Working at a well site, for example, requires individuals to work in all weather conditions. Additionally, individuals usually work long hours and often work several weeks in a row with no time off. There are significant opportunities for overtime pay.

Source: ShaleNET: A Guide to Careers 2013

Oil and gas occupations

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NOTICE
**THIS IS A
 DRUG-FREE
 WORKPLACE**

*There is **NO TOLERANCE FOR DRUG USE** in the oil and gas industry.*

FOR ADDITIONAL INFORMATION ON THESE OCCUPATIONS, VISIT


-  onetonline.org/
-  shalenet.org/
-  oogeep.org/industry-workforce/careers




Derrick Operators

Rig derrick equipment and operate pumps to circulate mud through drill hole.

SOC Code: 47-5011

 High school diploma or equivalent

 \$15.87 – \$21.10 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Operation Monitoring	Multi-limb Coordination
Mathematics	Operation & Control	Control Precision
English Language	Critical Thinking	Arm-Hand Steadiness
Education & Training	Monitoring	Manual Dexterity
Public Safety & Security	Repair	Reaction Time


TAKE NOTE

Most of the jobs listed will require long hours, irregular work schedules and shift work, including nights and weekends.

Earth Drillers

Operate a variety of drills such as rotary, churn, and pneumatic to tap sub-surface water and salt deposits, remove core samples during mineral exploration or soil testing, and facilitate the use of explosives in mining or construction. May use explosives. Includes horizontal and earth boring machine operators. **SOC Code 47-5021**

 High school diploma or equivalent

 \$13.23—\$19.74 per hour



TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Operation & Control	Control Precision
Public Safety & Security	Operation Monitoring	Multi-Limb Coordination
Administration & Management	Monitoring	Manual Dexterity
Mathematics	Critical Thinking	Arm-Hand Steadiness
	Equipment Maintenance	Reaction Time

Electrical Power and Telecommunications Line Installers



Install or repair cables or wires used in electrical power or distribution systems. May erect poles and light or heavy duty transmission towers. Install and repair telecommunications cable, including fiber optics. **SOC Codes 49-9051 and 49-9052**



-  High school diploma or equivalent
-  \$14.34 – \$27.30 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Active Listening	Near Vision
Telecommunications	Critical Thinking	Oral Comprehension
Physics	Operation Monitoring	Problem Sensitivity
Computers & Electronics	Troubleshooting	Oral Expression
Mathematics	Operation & Control	Multi-limb Coordination

Engineering Technicians

Includes Civil (**SOC: 17-3022**), Electrical (**SOC: 17-3023**), Environmental (**SOC: 17-3025**), Mechanical (**SOC: 17-3027**), Chemical (**SOC: 19-4031**), and Occupational Health and Safety (**SOC: 29-9012**). All apply theory and principles to plan, design, and oversee construction and maintenance; build, test, troubleshoot, and modify electronic components, equipment, and systems; modify, test, and operate equipment and devices used in the prevention, control, and remediation of environmental problems; modify, develop, test, or calibrate machinery and equipment. Work under direction of engineering staff. Conduct chemical and physical laboratory tests to assist scientists in making qualitative/quantitative analyses of materials for research/development of environmental standards; collect data on work environments for analysis by occupational health and safety specialists.

-  Associate or Bachelor’s Degree
-  \$13.21 – \$33.18 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Engineering Technology	Active Listening	Deductive Reasoning
Mathematics Critical Thinking	Oral Comprehension	Written Comprehension
English Language	Reading Comprehension	Inductive Reasoning
Design	Complex Problem Solving	Math Reasoning
Public Safety & Security	Writing	



Employers prefer applicants with college or technical training.



Engineers

Includes Civil (**SOC: 17-2051**), Electrical (**SOC: 17-2071**), Environmental (**SOC: 17-2081**), Mechanical (**SOC: 17-2141**), and Petroleum (**SOC: 17-2171**) Engineers. Plan, design, and oversee construction and maintenance; design, develop, test, or supervise the manufacturing and installation of electrical equipment and components; research, design, plan, or perform engineering duties in the prevention, control, and remediation of environmental hazards; plan and design tools, engines, machines, and other equipment, oversee installation, operation, maintenance, and repair of equipment; devise methods to improve oil and gas extraction and production.



Bachelor's Degree



\$22.00 – \$53.32 per hour

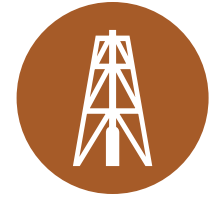
TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Engineering & Technology	Critical Thinking	Oral Comprehension
Mathematics	Active Listening	Deductive Reasoning
Physics	Complex Problem Solving	Written Comprehension
Design	Reading Comprehension	Oral Expression
Computers & Electronics	Mathematics	Problem Sensitivity



Gas Compressor/Pumping Station Operator

Oversee steam, gas, electric motor, or internal combustion engine driven compressors. Transmit, compress, or recover gases, such as butane, nitrogen, hydrogen, and natural gas. **SOC Code: 53-7071**



High school diploma or equivalent

\$21.96 – \$26.40 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Operation Monitoring	Problem Sensitivity
Mathematics	Operation & Control	Arm/Hand Steadiness
Public Safety & Security	Critical Thinking	Manual Dexterity
Production & Processing	Active Listening	Finger Dexterity
	Equipment Maintenance	Multi-limb Coordination

Helpers — Extraction

Help extraction craft workers, such as earth drillers, blasters and explosives workers, derrick operators, and mining machine operators, by performing duties requiring less skill. Duties include supplying equipment or cleaning work area. **SOC Code: 47-5081**

High school diploma or equivalent

\$10.17 – \$13.04 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Law and Government	Monitoring	Far Vision
Public Safety and Security	Operation Monitoring	Manual Dexterity
Mechanical	Critical Thinking	Multi-limb Coordination
	Equipment Maintenance	Near Vision
	Operation & Control	Problem Sensitivity

Industrial Machinery Mechanics

Repair, install, adjust, or maintain industrial production and processing machinery or refinery and pipeline distribution systems. **SOC Code: 49-9041**

High school diploma or equivalent

\$13.89 – \$20.87 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Operation Monitoring	Problem Sensitivity
Mathematics	Operation & Control	Arm/Hand Steadiness
Public Safety & Security	Critical Thinking	Manual Dexterity
Production & Processing	Active Listening	Finger Dexterity
Physics	Equipment Maintenance	Multi-limb Coordination



Safety awareness is a priority with employers.



Machinists

Set up and operate a variety of machine tools to produce precision parts and instruments. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures. **SOC Code: 51-4041**



High school diploma or equivalent



\$11.87 – \$18.01 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mathematics	Operation Monitoring	Arm/Hand Steadiness
Mechanical	Critical Thinking	Manual Dexterity
Production & Processing	Operation & Control	Control Precision
English Language	Active Listening	Finger Dexterity
Design	Coordination	Multi-limb Coordination

NOTICE

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Many employers **REQUIRE** you pass a drug screen before employment **AND** conduct random drug screens.

Machine Setters, Operators, and Tenders

Set up, operate, or tend plating or coating machines to coat metal or plastic products with chromium, zinc, copper, cadmium, nickel, or other metal to protect or decorate surfaces. Includes electrolytic processes. **SOC Code: 51-4193**



High school diploma or equivalent



\$14.12 – \$19.59 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Production and Processing	Operation Monitoring	Manual Dexterity
Public Safety and Security	Monitoring	Near Vision
Mathematics		Oral Expression
Administration & Management		Arm/Hand Steadiness
Chemistry		Control Precision

Maintenance and Repair Workers, General

Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of an establishment in repair. Duties may involve pipe fitting; boiler making; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs. **SOC Code: 49-9071**



High school diploma or equivalent



\$9.44 – \$15.73 per hour



TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Repairing	Information Ordering
Customer & Personal Service	Equipment Maintenance	Manual Dexterity
Building & Construction	Troubleshooting	Problem Sensitivity
Public Safety & Security	Critical Thinking	Arm-Hand Steadiness
	Complex Problem Solving	Near Vision

Mobile Heavy Equipment Mechanics, Except Engines

Diagnose, adjust, repair, or overhaul mobile mechanical, hydraulic, and pneumatic equipment, such as cranes, bulldozers, graders and conveyors, used in construction, logging and surface mining. **SOC Codes: 49-3042, 49-9041**



High school diploma or equivalent



\$14.06 – \$21.30 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Troubleshooting	Control Precision
Customer & Personal Service	Equipment Maintenance	Manual Dexterity
Computers & Electronics	Repairing	Arm-Hand Steadiness
Engineering & Technology	Operation Monitoring	Finger Dexterity
Mathematics	Operation & Control	Multi-Limb Coordination



Process Controls Specialist

Responsibility for process control systems and networks; troubleshooting system hardware and software issues and implementing repair. Must possess knowledge of instrumentations, process control schemes/automations and Distributed control Systems (DCS)/Programmable Logic controllers Systems (PLC). **SOC Code: 17-3029.04/51-8091**



Associate or Bachelor's Degree



\$18.00 – \$28.00 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Computer & Electronics	Critical Thinking	Problem Sensitivity
Mathematics	Complex Problem Solving	Deductive Reasoning
Production/Processing	Operation Monitoring	Information Ordering
Engineering & Technology	Operation & Control	Inductive Reasoning
Safety & Environmental	Reading Comprehension	Visualization

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Rotary Drill Operators

Set up or operate a variety of drills to remove underground oil and gas, or core samples for testing during oil and gas exploration. **SOC Code: 47-5012**



High school diploma or equivalent




\$14.50 – \$25.18 per hour


TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Critical Thinking	Control Precision
Mathematics	Operation & Control	Problem Sensitivity
Administration & Management	Operation Monitoring	Near Vision
Education and Training	Monitoring	Arm-Hand Steadiness
Personnel & Human Resources	Active Listening	Manual Dexterity

Roustabouts, Oil and Gas

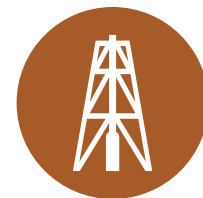
Assemble or repair oil field equipment using hand and power tools. Perform other tasks as needed. **SOC Code: 47-5071**

 High school diploma or equivalent

 \$12.65 – \$13.93 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Public Safety & Security	Monitoring	Manual Dexterity
Mechanical	Critical Thinking	Multi-limb Coordination
	Judgment & Decision Making	Problem Sensitivity
	Operation Monitoring	Near Vision
	Quality Control Analysis	Control Precision





**TAKE
NOTE**

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Service Unit Operators

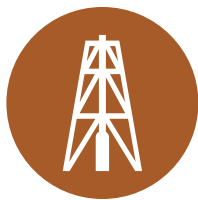
Operate equipment to increase oil flow from producing wells or to remove stuck pipe, casing, tools, or other obstructions from drilling wells. May also perform similar services in mining exploration operations. Includes fishing tool technicians. **SOC Code: 47-5013**

 Bachelor's Degree

 \$15.56 – \$22.27 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Operation Monitoring	Arm/Hand Steadiness
Mathematics	Critical Thinking	Control Precision
Customer & Personal Service	Operation & Control	Problem Sensitivity
Engineering & Technology	Monitoring	Multi-limb Coordination
Public Safety & Security	Active Listening	Near Vision



Truck Drivers

Drive a tractor-trailer combination or a truck with a capacity of at least 26,000 pounds Gross Vehicle Weight (GVW). May be required to unload truck. Requires commercial driver's license.

SOC Codes: 53-3032, 53-7051



High school diploma or equivalent and commercial driver's license



\$13.78 – \$17.84 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Transportation	Operation & Control	Control Precision
Public Safety & Security	Operation Monitoring	Far Vision
English Language	Monitoring	Multi-limb Coordination
Customer & Personal Service	Time Management	Near Vision
Mechanical	Critical Thinking	Response Orientation

Welders, Cutters, Solderers, and Braziers

Use hand-welding, flame-cutting, hand-soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products. **SOC Code: 51-4121**



Certification



\$12.90 – \$21.68 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Production & Processing	Critical Thinking	Arm-Hand Steadiness
Design	Operation & Control	Near Vision
Administration & Management	Monitoring	Control Precision
Mechanical	Reading Comprehension	Multi-limb Coordination
Mathematics		Problem Sensitivity

Wellhead Pumpers

Operate power pumps and auxiliary equipment to produce flow of oil or gas from wells in oil field.

SOC Code: 53-7073



High school diploma or equivalent



\$13.21 – \$19.53 per hour

TOP COMPETENCIES NEEDED

KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Operation Monitoring	Problem Sensitivity
Mathematics	Operation & Control	Control Precision
Production & Processing	Critical Thinking	Multi-limb Coordination
Public Safety & Security	Monitoring	Near Vision
	Repairing	Reaction Time