

A GUIDE TO CAREERS IN THE OIL AND NATURAL GAS INDUSTRY

2013

ACKNOWLEDGEMENTS

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INTRODUCTION

Considering a career in the Oil and Natural Gas industry? Looking for a long-term career that will provide opportunities for growth and competitive wages?

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 also growing rapidly meaning that employers are frequently in need of skilled men and women who can fill their positions. For youth and adults interested in exploring these career fields, however, searches can be confusing, frustrating and fruitless. This Guide to Careers in the Oil and Natural Gas Industry offers information and resources to determine if this industry aligns with your career plans and interests. It also provides information regarding what level of education is needed for specific occupations, what skills are typically required, and wage ranges that can be expected.

HOW TO USE THE CAREER GUIDE

Within the Guide to Careers in the Oil and Natural Gas Industry, there are two types of information. The first section provides an overview of the Oil and Natural Gas industry with a focus on Shale Oil and Shale Natural Gas. Also included is information regarding hiring trends, work environments and day-to-day expectations relevant to any career in the industry.

The second section of the guide provides individual profiles for forty-eight (48) occupations that are employed within the industry. These profiles provide a snapshot of the occupations, the typical duties and skills needed, and a few key statistics to consider. When reviewing the occupational profiles, note the following:

Organized by Functional Families – The occupational profiles have been grouped according to the functions they address. These groups include: 1) Architectural and Engineering Occupations; 2) Management and Supervisory Occupations; 3) Construction Occupations; 4) Extraction Occupations; 5) Installation, Maintenance, and Repair Occupations, and 6) Production and Transportation Occupations. These groupings will help to narrow the search for occupations for individuals interested in a particular focus area or who are transitioning from related fields.

Individual Occupational Profiles – The profile for each occupation includes detailed information that will help to develop a deeper understanding of the job responsibilities, education levels preferred, and the skills typically required by employers. Also included in the profiles are:

- *Alternative Titles* – In some cases, there are multiple job titles used by employers to refer to the same occupation. Alternative titles have been included for each occupation. This information can be particularly helpful when searching for current job openings.
- *Data Icons* – The data icons included in each occupational profile provide a quick and easy way to determine the number of individuals employed in the region in that occupation, the wage ranges, if the occupation is growing and the education level typically required for the occupation.
 - *Current Employment* – the number of individuals currently employed in the occupation in the region as well as the nation
 - *Projected Regional Growth* – the rate at which the occupation is estimated to grow over the next five years (2013 – 2018)
 - *Entry Wages and Experience Wages* – the wage ranges the occupation offers for workers who are just getting started in the occupation (entry) and the wage range for those who have several years of experience working in the occupation
 - *Education Level* – the typical level of education required for the occupation

The data icons can be helpful in reviewing the occupational profiles, but be careful not to dismiss an occupation simply because these data indicators do not match your criteria. For example, an occupation may not be projected to have particularly high growth, but that occupation may have higher current employment than other jobs. This would suggest that there may be just as many job opportunities in the future.

VETERANS

Veterans are oftentimes uniquely well-suited for careers in the Oil and Natural Gas industry. The skills developed during their time in the military frequently translates into these hands-on careers. To assist in translating military qualifications to similar occupations in the Oil and Natural Gas industry, Military Occupational Classifications have been included in each occupational profile. When available, the military occupational classifications have been included for all branches of the military:

- Air Force Specialty Code (AFSC)
- Army Military Occupational Specialty (MOS)
- Coast Guard Ratings
- Marine Corps Military Occupational Specialty (MOS)
- Navy Ratings

For veterans interested in other ways their skills and military qualifications translate to civilian careers, additional information can be found at My Next Move

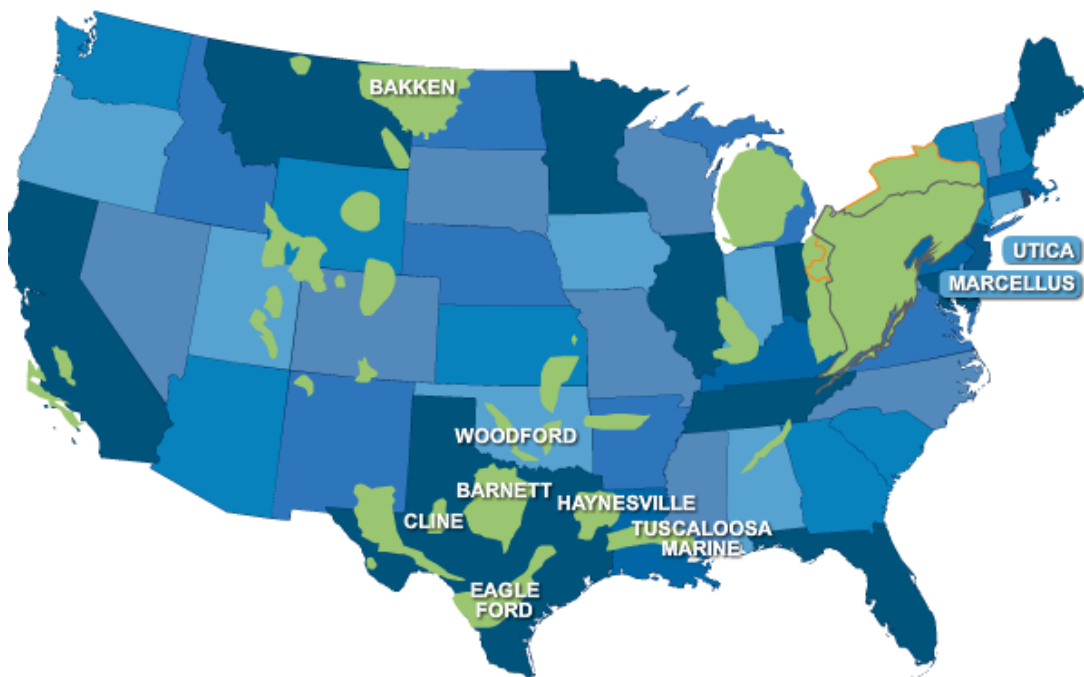
(www.mynextmove.org/vets/).

THE OIL AND NATURAL GAS INDUSTRY

Oil and Natural Gas account for 60 percent of the energy consumed in the United States.¹ In order to meet the growing demand for oil and natural gas, domestic production offers not only a means of keeping prices competitive, but also provides hundreds of thousands well-paying jobs for American workers. In regard to natural gas alone, the industry provides approximately 600,000 jobs for American workers.² These are jobs that can be leveraged into long-term careers and provide family-sustaining wages.

The largest growing segment of the natural gas industry is Shale gas. The production of Shale gas is projected to grow by 113 percent by 2040³ meaning there will be a long-term need for skilled talent in the industry. Shale plays – the geography targeted for exploration – are found across the United States with the largest plays in New York, Ohio, Pennsylvania, and West Virginia (Marcellus and Utica), Montana and North Dakota (Bakken), and Louisiana, Oklahoma and Texas.

Shale Plays in the United States



¹ US Department of Energy, National Energy Technology Laboratory (NETL), <http://www.netl.doe.gov/technologies/oil-gas/>

² American Natural Gas Alliance, "Why Natural Gas?" <http://www.anga.us/media/content/F7D1441A-09A5-D06A-9EC93BBE46772E12/files/why%20natural%20gas.pdf>

³ US Department of Energy, Energy Information Administration, http://www.eia.gov/forecasts/aeo/MT_naturalgas.cfm

MARCELLUS SHALE

The Marcellus Shale play is the largest shale region found the United States and primarily extends below Pennsylvania, West Virginia, Ohio and New York. Covering approximately 575 miles, the play also extends to parts of Kentucky, Maryland, Tennessee and Virginia. The first vertical well was drilled in the Marcellus shale play in 2003. Three years later, in 2006, the first horizontal well was completed in the region which spurred the growth and activity of the industry in the region.⁴ The Marcellus shale is typically found approximately one mile below the surface. Most commonly, gas is extracted through horizontal drilling techniques.⁵

5 Facts about Marcellus Shale

1. Marcellus Shale received its name after the town where an outcropping of the shale was first discovered – Marcellus, New York.
2. The shale play covers 95,000 square miles.
3. Shale is found at a depth of 2,000 to 9,000 feet below the surface and is estimated to be 50 to 350+ feet thick.
4. There are an estimated 410 trillion cubic feet of gas reserves in the Marcellus play.
5. In 2012, Pennsylvania produced approximately 10% of the total natural gas production in the United States.

From ShaleNET.org

In Pennsylvania alone, there are an estimated 239,474 jobs that are directly employed in the natural gas industry (30,369 jobs) or its related industries (209,105 jobs). From 2009 to 2012, a total of 33,415 jobs were added within the core industries (18,181 jobs) and related industries (15,234 jobs).⁶ Furthermore, on average, oil and natural gas jobs pay significantly higher wages than other industries. The average annual wage for jobs in the core industries was \$83,100 compared to \$48,400 across all industries.⁷

UTICA SHALE

Below the Marcellus Shale, another shale formation is found which can be tapped for both gas and oil – Utica Shale. Estimates place the Utica Shale formation at almost twice the size of the Marcellus play. Like the Marcellus formation, it extends throughout New York, Ohio, Pennsylvania and West Virginia but also reaches parts of Kentucky, Maryland, Tennessee, Virginia, Ontario and Quebec. Utica Shale is currently being explored primarily in Southeastern Ohio and Western Pennsylvania. Utica Shale is found 2,000 to 14,000 feet below the surface and can be 100 to 500+ feet thick. It is estimated to yield 15 trillion cubic feet of gas reserves and 5.5 billion barrels of oil reserves.⁸

⁴ ShaleNET, Oil and Natural Gas Industry: Shale Play Map, <http://www.shalenet.org/industryoverview>

⁵ Marcellus Shale Coalition, “10 Fast Facts about the Marcellus Shale,” http://marcelluscoalition.org/wp-content/uploads/2011/10/MSF_Fast_Facts_Large.pdf

⁶ Pennsylvania Department of Labor and Industry, Center for Workforce Information and Analysis, “Marcellus Shale Fast Facts,” June 2013 Edition. Industry Data is from Pennsylvania’s Quarterly Census of Employment and Wages, 2012 Q4.

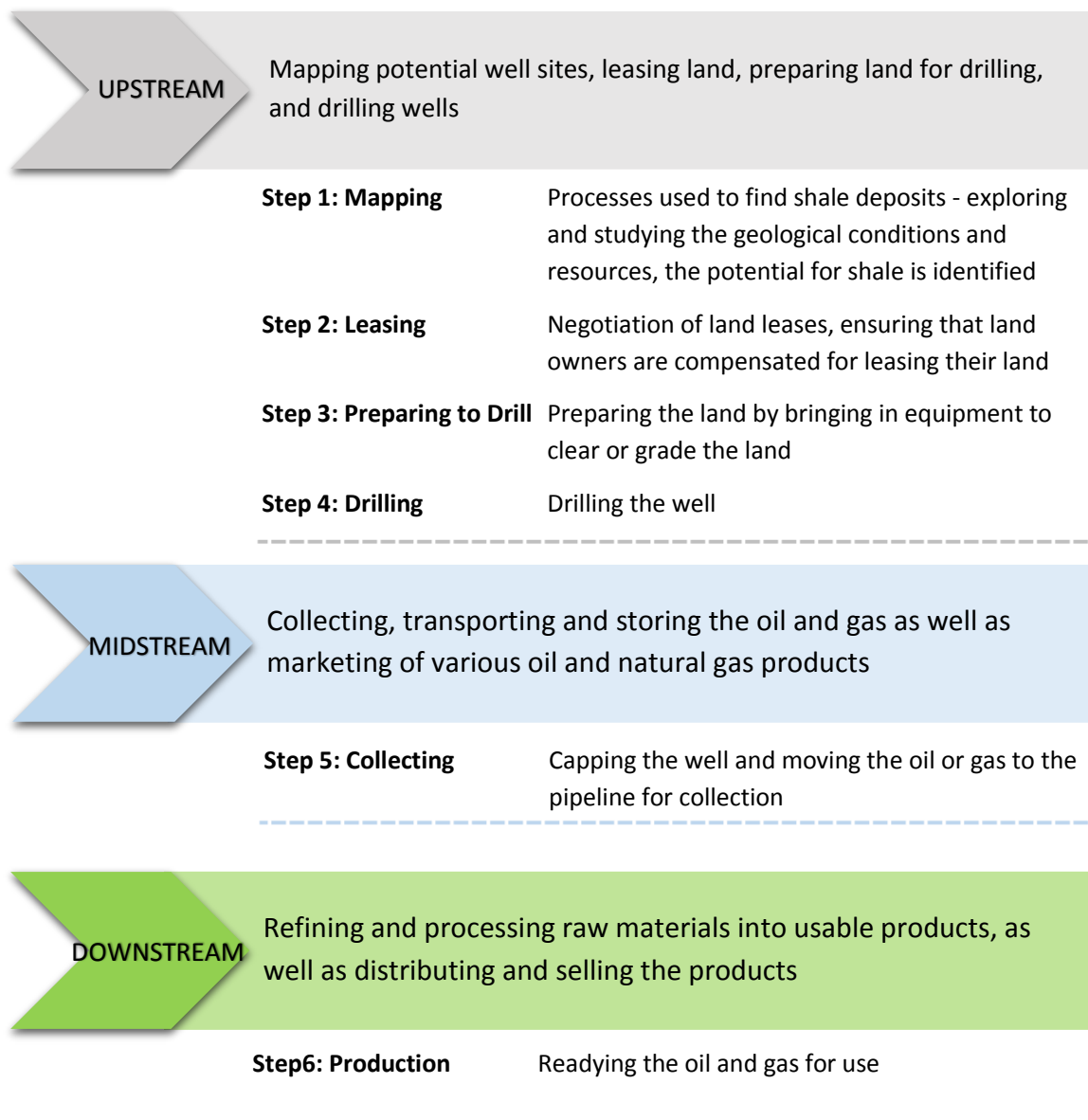
⁷ Ibid. Note: CWIA used the North American Industry Classification System (NAICS) to define the Marcellus Shale related industries. Six industries were identified as “core” and a group of 30 industries were identified as “ancillary” for Marcellus Shale related activity.

⁸ ShaleNET

THREE SEGMENTS OF THE INDUSTRY

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, midstream and downstream activities combine to bring oil and gas products to the end user. The following processes are all needed as part of the combined process:



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



OIL AND NATURAL GAS COMPANIES

The industry is comprised of not only the large energy companies that are house-hold names such as Chevron, Chesapeake, or Shell. It is also made up of many medium sized and smaller service companies that work with and support these larger corporations. Contractor companies work with the energy companies to provide a wide array of services and functions. For example, a contractor may provide well services for sites where drilling is complete.

Service companies provide just as many if not more job opportunities than the well-known energy companies within the region. It is important for individuals to widen their job searches to include companies of all sizes when they are beginning or transitioning into a career in the industry.

BENEFITS OF WORKING IN THE INDUSTRY

TRANSFERABILITY INTO AND WITHIN THE INDUSTRY

There are many opportunities to transfer into the Oil and Natural Gas from other regions of the country, from other industries and even from the military. This means that the opportunities for careers in the industry are endless. Similarly, within the industry, individuals can move along a career path relatively quickly if they display good work ethic and show initiative.

From different regions of the U.S. – The Marcellus and Utica Shale plays are two of several plays that provide long-term career opportunities in the region. There is active exploration, drilling and production in Louisiana, Montana, North Dakota, Oklahoma and Texas. While operations may vary from play to play, opportunities exist to leverage experience in one region into career opportunities in another.

From other industries into the Oil and Natural Gas Industry – At the heart of many of the occupations employed in the Oil and Natural Gas industry are skills that are commonly needed by many other industries. Whether it is applying mechanical skills from previous experience in manufacturing, supervising the construction of a highway rather than a well, or leveraging other experiences, there are opportunities to leverage experience into careers in oil and natural gas.

From the Military into the Industry – Many skills and knowledge gained through military service positions veterans to easily transition into civilian careers in the Oil and Natural Gas industry. To help in this transition, military occupational classifications have been identified in the occupational profiles that align well to the individual occupations employed in the industry.

CAREER PATHS

For those starting a career in the industry, there are many opportunities to advance along career paths. Individuals can move up quickly in responsibility and salary if they are willing to work hard and learn fast.

For example, with time and hard work, an individual can start as a Roustabout, earning \$14 per hour, advance to a Rotary Drill Operator (\$19 per hour) and eventually advance further to a Derrick Hand where he or she can earn up to \$25 per hour.

ROUSTABOUT → ROTARY DRILL OPERATOR → DERRICK HAND

Many other career pathways exist and are available to those with the initiative to pursue them.

INDUSTRY EXPECTATIONS

Before starting a career in the Oil and Natural Gas industry, there are certain industry expectations to be aware of.

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. This can be difficult for workers that cannot or do not want to spend time away from their families. In these circumstances, however, there are significant opportunities for overtime pay. Some occupations can require manual labor and a certain degree of mechanical inclination.

10 Qualities Looked for by the Industry

1. Be a fast learner
2. Work hard and be willing to work long hours.
3. Enjoy the outdoors
4. Be a reliable team player
5. Be dependable and on-time
6. Be a problem solver
7. Be a self-starter
8. Have a supportive family that will understand long hours
9. Be physically fit
10. Have strong mechanical ability

Source: ShaleNET.org

STARTING OUT IN THE INDUSTRY

FINDING JOB OPPORTUNITIES IN THE INDUSTRY

Each company in the oil and natural gas industry has its own hiring practices and methods. But, for individuals looking to start or continue their career in the industry, it is important to know of some of the common ways to find open job positions.

- *Company Websites* – most companies will post open positions on their corporate websites before posting anywhere else. Certain companies will even use their corporate website as the sole posting of an open position. Job candidates can apply directly through these sites in many cases; in others, the website will provide further details about the application process.
- *Career Websites and Job Portals* – Career websites are another popular way to post jobs online. These sites can be industry specific such as Rigzone.com or an industry association's career site (PIOGA Career Center, OOGA Career Center, etc.). They can also be general job portals such as Monster.com or CareerBuilder.com.
- *Referrals* – Many employers look to their current employees to identify potential candidates to fill open positions. These are trusted individuals who have demonstrated their work ethic and knowledge of the industry and who can lessen the risk when hiring someone new. Individuals looking to start a career or transition into the oil and natural gas industry can ask their friends and family about others who may currently work in the industry and begin to network with these current industry employees.

THE “EXPERIENCE” FACTOR

Many employers in the oil and natural gas industry place a high priority on hiring candidates with previous experience. This can be especially difficult for younger candidates who have not had the opportunity to gain on-the-job experience yet. The amount of experience preferred by employers varies by occupation, however, and there are entry-level positions that can be leveraged as the first stepping stone along a career pathway.

Internships and other work-based learning opportunities can be a good tool to leverage while completing training or preparing for full-time employment. For others who are transitioning into the industry from other sectors such as manufacturing or other skilled trades, the experience gained through these work environments can be used to demonstrate related skills and abilities, work ethics and communication skills, and leadership.

Oil and Natural Gas Occupational Profiles

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A WORD ABOUT THE DATA

The development of the occupational profiles included in the Guide to Careers in the Oil and Natural Gas Industry drew on previous projects and a number of data sources. In order to identify the occupations for the career guide, previous occupational guides were examined and cross-referenced to identify common occupations. These occupations were used as a starting point for the Guide to Careers in the Oil and Natural Gas Industry. Input from the project steering committee and industry experts helped to narrow the list which was further refined to include occupations that were either entry-level positions in the industry or within a few career steps of entry-level occupations.

Occupations are grouped by functions within the industry – Architecture and Engineering Occupations, Supervisory and Management Occupations, Construction Occupations, Extraction Occupations, Installation, Maintenance and Repair Occupations, and Production and Transportation Occupations – to make the career easier to navigate.

Occupational Profiles

To provide a well-rounded picture of the occupations, both quantitative and qualitative information is included in each of the profiles. A brief descriptions of the occupation, key tasks, work contexts and educational requirements are included as well as alternative titles to consider. Data reflecting current employment, the expected growth, and wage ranges are also found in the occupational profiles. These data are from two sources: O*NET Online (www.onetonline.org) and EMSI (www.economicmodeling.com).

Data Sources:

Alternate Titles	O*NET Online
Military Connections	My Next Move for Veterans*
Industry Connections	EMSI
Occupation Description	O*NET Online
Education Required	EMSI
Basic Work Requirements	O*NET Online
Top Competencies	EMSI
Current Employment	EMSI
Projected Growth	EMSI
Wage Ranges	EMSI



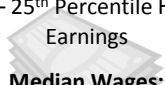

**My Next Move for Veterans is an O*NET Online site.*

Real Time Labor Market Information

In addition to the individual occupational profiles, real time labor market information (LMI) is provided for occupational groups. Real time LMI – in this case from Burning Glass – uses “spidering” technologies and matching analytics to extract job postings from the web. Real time LMI provides the most up-to-date information available. For each occupational group, a real time snap-shot is provided that highlights the number of actual job postings for those occupations over a two-year period, the companies with the most job postings, specific certifications, and the actual skills employers are seeking in job postings.

SAMPLE OCCUPATIONAL PROFILE WITH DATA SOURCES

A sample occupational profile is included below highlighting the sources for each of the data points.

STANDARD OCCUPATIONAL TITLE (SOC Code)														
Alternate Titles <i>Source: O*NET Online</i>	Description of the occupation and the key responsibilities and tasks typically expected of individuals in the position. <i>Source: O*NET Online</i>	 Current Employment (2013) Regional Jobs National Jobs <i>Source: EMSI</i>												
Career Connections Military Connections Military Occupational Classifications (MOC) crosswalks for each branch of the military <i>Source: My Next Move for Veterans – an O*NET Online site</i>	Education Requirements Minimum education typically required for the occupation. <i>Source: EMSI</i>	 Projected Regional Growth (2013-2018) <i>Source: EMSI</i>												
Industry Connections Other industries that employ this occupation: <i>Source: EMSI</i>	Basic Work Requirements Physical and social factors that influence the nature of work in the occupation. <i>Source: O*NET Online</i>	Entry Wages: 10 th – 25 th Percentile Hourly Earnings  Median Wages: Median – 75 th Percentile Hourly Earnings <i>Source: EMSI</i> <i>Note: Wages are rounded to the nearest \$0.50 for clarity.</i>												
	Top Competencies <table border="1"><thead><tr><th>Knowledge</th><th>Skills</th><th>Abilities</th></tr></thead><tbody><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></tbody></table> <i>Source: EMSI</i>	Knowledge	Skills	Abilities										 Education Required Minimum education required <i>Source: EMSI</i>
Knowledge	Skills	Abilities												



ARCHITECTURE AND ENGINEERING OCCUPATIONS



Architecture and Engineering Occupations: Real-time Snap Shot

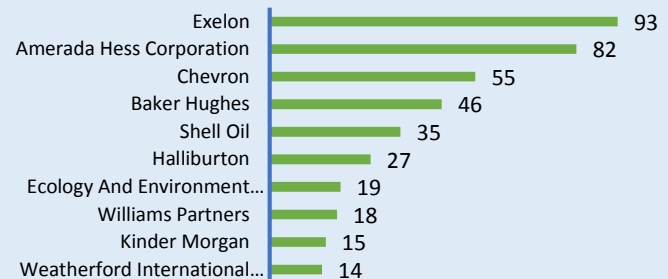
Occupational profiles follow for seven (7) Architecture and Engineering occupations. Between the two-year period of January 1, 2011 and December 31, 2012, there were a total of 583 online job postings for these occupations in the region. Real-time occupational data examined from these online job postings provides insight into the certifications, technical and specialized skills and hiring needs of employers in the Oil and Natural Gas Industry. Real-time information is included below for the following occupations:

- Architects
- Surveyors
- Civil Engineers
- Electrical Engineers
- Environmental Engineers
- Mechanical Engineers
- Petroleum Engineer

The chart to the right depicts the companies with the most Architecture and Engineering job postings in the region during the period of January 1, 2011 through December 31, 2013. As the postings show, there are job opportunities from energy companies and services companies and contractors.

In analyzing these actual job postings, information about the specific skills and certifications sought by employers emerges. For example, the job postings often list specific certifications sought by employers for these positions as well as the technical and foundational skills they look for in successful candidates.

Companies with the Most Job Postings (Jan 2011 – Dec 2013)



Top Certifications in Demand

- Engineer in Training Certification
- American Society of Mechanical Engineers (ASME) Certified
- Professional Engineer
- Commercial Driver's License
- Six Sigma Certification

Top Skills in Demand by Employers

TECHNICAL AND SPECIALIZED SKILLS	FOUNDATIONAL SKILLS
1. Software and Programming Skills	1. Communication Skills
2. Engineering: General	2. Planning
3. Legal: General	3. Leadership
4. Green: Pollution Reduction, Removal, and Remediation	4. Project Management
5. Engineering: Electrical and Electronic	5. Cost Estimation
6. Engineering: Mechanical	6. Writing
7. Repair: General	7. Organizational Skills
8. Engineering: Environmental	8. Computer Skills
9. Engineering: Civil	9. Management
10. IT: Web Design and Technologies	10. Microsoft Office

ARCHITECTS

SOC Code: 17-1011

Alternate Titles

Project Architect

Project Manager

Architectural Project
Manager

Principal

Design Architect

Career Connections

Military Connections

Architects are similar to the following military occupational classifications:

Air Force: 32E1A, 32E3A, 43E1E, 43E3E, 43E4E

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Architectural Services

Engineering Services

Surveying and Mapping
Services

Building Inspection Services

Landscape Architectural
Services

Architects plan and design structures, such as private residences, office buildings, theaters, factories, and other structural property. Tasks Architects are responsible for include, but are not limited to:

- Consult with clients to determine functional or spatial requirements of structures.
- Prepare scale drawings.
- Plan the layout of a project.
- Prepare information regarding design, structure specifications, materials, color, equipment, estimated costs, or construction time.

Education Required

Architects typically have at least a Bachelor's degree. Many also have a Master's degree.

Basic Work Requirements

Architects are required to:

- Make decisions and solve problems
- Think creatively to develop, design or create new applications or products
- Communicate with persons outside the organization
- Draft, lay out, and specify technical devices, parts, and equipment
- Evaluation information to determine compliance with standards

Top Competencies Required

Knowledge	Skills	Abilities
Design	Critical Thinking	Visualization
Building and Construction	Active Listening	Near Vision
Engineering and Technology	Complex Problem Solving	Deductive Reasoning
Customer and Personal Service	Speaking	Problem Sensitivity
Administration and Management	Reading Comprehension	Fluency of Ideas



Current Employment:

1,262 Regional Jobs
87,262 National Jobs



2.1%

Projected Regional Growth
(2013-2018)

Entry Wages:

\$21.50 - \$25.00 per hour

Experienced Wages:

\$31.50 - \$39.00 per hour



Bachelor's Degree Required

SURVEYORS

SOC Code: 17-1022

Alternate Titles

County Surveyor
Land Surveyor
Survey Party Chief
Engineer
Engineering Technician
Geodesist
Licensed Land Surveyor
Mine Surveyor
Professional Land Surveyor

Career Connections

Military Connections

Surveyors are similar to the following military occupational classifications:

Air Force: N/A

Army: 13E, 13R, 14E, 18C

Coast Guard: N/A

Marine Corps: 0261

Navy: 5599, EA

Industry Connections

Other industries that employ this occupation include:

Engineering Services
Architectural Services
Surveying and Mapping Services
Local and State Government

Surveyors make exact measurements and determine property boundaries. Provide data relevant to the shape, contour, gravitation, location, elevation, or dimension of land or land features on or near the earth's surface for engineering, mapmaking, mining, land evaluation, construction, and other purposes. Tasks Surveyors are responsible for include, but are not limited to:

- Verify survey data is accurate including measurements and calculations conducted at survey sites.
- Search legal records, survey records, and land titles to obtain information about property boundaries in areas to be surveyed.
- Calculate heights, depths, relative positions, property lines, and other characteristics of terrain.
- Prepare and maintain sketches, maps, reports, and legal descriptions of surveys.

Education Requirements

Surveyors typically have a Bachelor's degree.

Basic Work Requirements

Surveyors are required to:

- Be exact and/or highly accurate
- Utilize the telephone
- Utilize electronic mail
- Participate in face-to-face discussions with individuals or teams
- Work outdoors, exposed to weather

Top Competencies Required

Knowledge	Skills	Abilities
Mathematics	Reading Comprehension	Mathematical Reasoning
Law and Government	Mathematics	Number Facility
Engineering and Technology	Critical Thinking	Oral Expression
Geography	Writing	Written Comprehension
Design	Speaking	Deductive Reasoning



Current Employment:
1,051 Regional Jobs
42,376 National Jobs



9.5%

Projected Regional Growth
(2013-2018)

Entry Wages:
\$13.50 - \$16.00 per hour

Experienced Wages:
\$22.50 - \$29.00 per hour



Bachelor's Degree Required

CIVIL ENGINEERS

SOC Code: 17-2051

Alternate Titles

Engineer
Project Engineer
Project Manager
Structural Engineer
City Engineer
Civil Engineering Manager
Design Engineer
Railroad Design Consultant
Research Hydraulic Engineer

Career Connections

Military Connections

Civil Engineers are similar to the following military occupational classifications:

Air Force: 32E1C, 32E3C, 32E4, 43E1C, 43E3C, 43E4C

Army: 12A, 12B

Coast Guard: 55

Marine Corps: 1120, 1302, 1310

Navy: 4210, 4220, 4225

Industry Connections

Other industries that employ this occupation include:

Engineering Services
Local, State and Federal Government
Commercial and Institutional Building Construction

Civil Engineers perform engineering duties in planning, designing, and overseeing construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, and water and sewage systems. Tasks Civil Engineers are responsible for include, but are not limited to:

- Manage staff members and the construction, operations, or maintenance activities at project site.
- Provide technical advice regarding design, construction, or program modifications and structural repairs to industrial and managerial personnel.
- Inspect project sites to monitor progress, conformance to design specifications, and safety standards.
- Estimate quantities and cost of materials, equipment, or labor to determine project feasibility.

Education Requirements

Civil Engineers typically have a Bachelor's degree.

Basic Work Requirements

Civil Engineers are required to:

- Use the telephone
- Utilize electronic mail
- Participate in face-to-face discussions with individuals or teams
- Be exact and/or highly accurate
- Exercise the freedom to make decisions, without supervision

Top Competencies Required

Knowledge	Skills	Abilities
Engineering and Technology	Mathematics	Problem Sensitivity
Design	Critical Thinking	Oral Comprehension
Building and Construction	Judgment and Decision Making	Deductive Reasoning
Mathematics	Complex Problem Solving	Oral Expression
English Language	Reading Comprehension	Mathematical Reasoning



Current Employment:
6,641 Regional Jobs
257,876 National Jobs



9.0%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$23.00 - \$28.00 per hour

Experienced Wages:
\$35.00 - \$42.50 per hour



Bachelor's Degree Required

ELECTRICAL ENGINEERS

SOC Code: 17-2071

Alternate Titles

Electrical Design Engineer
Project Engineer
Electrical Controls Engineer
Test Engineer
Hardware Design Engineer
Circuits Engineer
Electrical and Instrument
Maintenance Supervisor

Career Connections

Military Connections

Electrical Engineers are similar to the following military occupational classifications:

Air Force: 32E1E, 32E3E, 62E1E, 62E3E

Army: 24Z

Coast Guard: N/A

Marine Corps: 8824, 8834

Navy: 5904, 5913, 5917, 5925, 5927, 5960, 5961, 5970, 8004, 8015

Industry Connections

Other industries that employ this occupation include:

Engineering Services
Electrical Power Distribution
Search, Detection, Navigation, Guidance and Nautical System and Instrument Manufacturing
Fossil Fuel Electrical Power Generation

Electrical Engineers research, design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use. Tasks Electrical Engineers are responsible for include, but are not limited to:

- Prepare technical drawings, specifications of electrical systems, or topographical maps to ensure conformity to standards and customer requirements.
- Operate computer-assisted engineering or design software or equipment to perform engineering tasks.
- Confer with engineers, customers, or others to discuss existing or potential engineering projects or products.
- Direct or coordinate manufacturing, construction, installation, maintenance, support, documentation, or testing activities to ensure compliance with specifications, codes, or customer requirements.

Education Requirements

Electrical Engineers typically have a Bachelor's degree.

Basic Work Requirements

Electrical Engineers are required to:

- Utilize electronic mail
- Typically work indoors in environmentally controlled conditions
- Use the telephone
- Participate in face-to-face discussions with individuals or teams
- Work with others in a group or team

Top Competencies Required

Knowledge	Skills	Abilities
Engineering and Technology	Reading Comprehension	Problem Sensitivity
Design	Critical Thinking	Written Comprehension
Mathematics	Active Listening	Oral Expression
Computers and Electronics	Writing	Oral Comprehension
Physics	Complex Problem Solving	Deductive Reasoning



Current Employment:
3,982 Regional Jobs
158,480 National Jobs



2.8%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$26.00 - \$31.50 per hour

Experienced Wages:
\$39.00 - \$47.50 per hour



Bachelor's Degree Required

ENVIRONMENTAL ENGINEERS

SOC Code: 17-2081

Alternate Titles

Air Pollution Control Engineer
Environmental Analyst
Environmental Remediation Specialist
Hazardous Substances Engineer
Marine Engineer CPVEC
Regulatory Environmental Compliance Manager
Sanitary Engineer

Career Connections

Military Connections

Environmental Engineers are similar to the following military occupational classifications:

Air Force: 32E1J, 32E3J, 43E1B, 43E1D, 43E3B, 43E3D, 43E4B, 43E4D

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Engineering Services
Local, State and Federal Government
Management Consulting Services

Environmental Engineers research, design, plan, or perform engineering duties in the prevention, control, and remediation of environmental hazards using various engineering disciplines. Work may include waste treatment, site remediation, or pollution control technology. Tasks Environmental Engineers are responsible for include, but are not limited to:

- Design systems, processes, or equipment for control, management, or remediation of water, air, or soil quality.
- Advise corporations or government agencies of procedures to follow in cleaning up contaminated sites to protect people and the environment.
- Collaborate with environmental scientists, planners, hazardous waste technicians, engineers, experts in law or business to address environmental problems.
- Obtain, update, or maintain plans, permits, or standard operating procedures.

Education Requirements

Environmental Engineers typically have a Bachelor's degree.

Basic Work Requirements

Environmental Engineers are required to:

- Utilize electronic mail
- Utilize the telephone
- Participate in face-to-face discussions with individuals or teams
- Work with others in a group or team
- Work the duration of a typical work week

Top Competencies

Knowledge	Skills	Abilities
Engineering and Technology	Reading Comprehension	Written Comprehension
Mathematics	Critical Thinking	Oral Comprehension
Chemistry	Complex Problem Solving	Problem Sensitivity
English Language	Active Listening	Written Expression
Law and Government	Active Learning	Oral Expression



Current Employment:
1,268 Regional Jobs
52,061 National Jobs



7.3%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$24.00 - \$29.50 per hour

Experienced Wages:
\$37.50 - \$45.50 per hour



Bachelor's Degree Required

MECHANICAL ENGINEERS

SOC Code: 17-2141

Alternate Titles

Design Engineer
Product Engineer
Mechanical Design Engineer
Process Engineer
Equipment Engineer
Design Maintenance Engineer
Systems Engineer
Commissioning Engineer

Career Connections

Military Connections

Mechanical Engineers are similar to the following military occupational classifications:

Air Force: 32E1F, 32E3F, 62E1H, 62E3H

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: 8050, MMW

Industry Connections

Other industries that employ this occupation include:

Engineering Services
Corporate, Subsidiary, and Regional Managing Offices
Railroad Rolling Stock Manufacturing
Research and Development in Physical, Engineering, and Life Sciences

Mechanical Engineers perform engineering duties in planning and designing tools, engines, machines, and other equipment. They also oversee installation, operation, maintenance, and repair of equipment such as centralized heat, gas, water, and steam systems. Tasks Mechanical Engineers are responsible for include, but are not limited to:

- Read and interpret blueprints, technical drawings, schematics, or computer-generated reports.
- Assist drafters in developing the structural design of products using drafting tools or computer-assisted design software.
- Research, design, install, and operate mechanical products, equipment, systems and processes to meet requirements.
- Confer with personnel to resolve system malfunctions, or provide technical information.

Education Requirements

Mechanical Engineers typically have a Bachelor's degree.

Basic Work Requirements

Mechanical Engineers are required to:

- Utilize electronic mail
- Work indoors in environmentally controlled conditions
- Participate in face-to-face discussions with individuals or teams
- Utilize the telephone
- Be in contact with others through face-to-face conversations, by telephone, or otherwise

Top Competencies

Knowledge	Skills	Abilities
Engineering and Technology	Complex Problem Solving	Mathematical Reasoning
Design	Critical Thinking	Information Ordering
Mechanical	Mathematics	Written Comprehension
Mathematics	Reading Comprehension	Deductive Reasoning
Physics	Judgment and Decision Making	Problem Sensitivity



Current Employment:
7,803 Regional Jobs
252,939 National Jobs



1.9%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$23.00 - \$27.50 per hour

Experienced Wages:
\$33.50 - \$42.00 per hour



Bachelor's Degree Required

PETROLEUM ENGINEERS

SOC Code: 17-2171

Alternate Titles

Reservoir Engineer
Drilling Engineer
Petroleum Production Engineer
Production Engineer
Operations Engineer
Completion Engineer
Completions Engineer
Drilling Manager

Career Connections

Military Connections

Petroleum Engineers are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Support Activities for Oil and Gas Operations

Corporate, Subsidiary and Regional Managing Offices

Engineering Services

Other Petroleum and Coal Products Manufacturing

Petroleum Engineers devise methods to improve oil and gas extraction and production and determine the need for new or modified tool designs. They oversee drilling and offer technical advice. Tasks Petroleum Engineers are responsible for include, but are not limited to:

- Assess costs and estimate the production capabilities of oil and gas wells to evaluate the economic viability of potential drilling sites.
- Develop plans for oil and gas field drilling, and for product recovery and treatment.
- Direct and monitor the completion and evaluation of wells, well testing, or well surveys.
- Analyze data to recommend placement of wells and supplementary processes to enhance production.

Education Requirements

Petroleum Engineers typically have a Bachelor's degree.

Basic Work Requirements

Petroleum Engineers are required to:

- Utilize electronic mail
- Utilize the telephone
- Work in a structured role, rather than individually determine tasks, priorities, and goals
- Participate in face-to-face discussions with individuals or teams
- Work indoors in environmentally controlled conditions

Top Competencies

Knowledge	Skills	Abilities
Engineering and Technology	Reading Comprehension	Written Comprehension
Mathematics	Speaking	Oral Expression
Physics	Active Listening	Oral Comprehension
Computers and Electronics	Critical Thinking	Written Expression
Administration and Management	Writing	Inductive Reasoning



Current Employment:

734 Regional Jobs

38,513 National Jobs



36.6%

Projected Regional Growth
(2013-2018)

Entry Wages:

\$30.50 - \$38.00

Experienced Wages:

\$49.00 - \$65.50



Bachelor's Degree Required



Architecture and Engineering Technician Occupations: Real-time Snap Shot

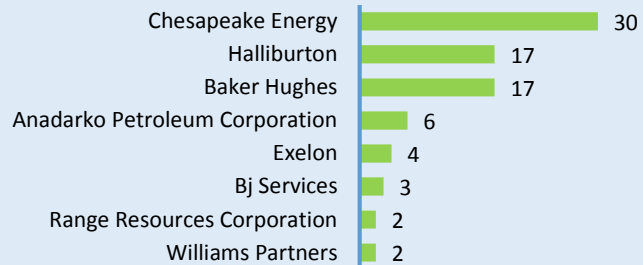
Occupational profiles follow for seven (7) Architecture and Engineering Technician occupations. Between the two-year period of January 1, 2011 and December 31, 2012, there were a total of 81 online job postings for these occupations in the region. Real-time occupational data examined from these online job postings provides insight into the certifications, technical and specialized skills and hiring needs of employers in the Oil and Natural Gas Industry. Real-time information is included below for the following occupations:

- Surveying and Mapping Technicians
- Architectural and Civil Drafters
- Civil Engineering Technicians
- Electronics Engineering Technicians
- Environmental Engineering Technicians
- Mechanical Engineering Technicians
- Chemical Technicians

The chart to the right depicts the companies with the most Architecture and Engineering Technician job postings in the region during the period of January 1, 2011 through December 31, 2013. As the postings show, there are job opportunities from energy companies and services companies and contractors.

In analyzing these actual job postings, information about the specific skills and certifications sought by employers emerges. For example, the job postings often list specific certifications sought by employers for these positions as well as the technical and foundational skills they look for in successful candidates.

Companies with the Most Job Postings (Jan 2011 – Dec 2013)



Top Certifications in Demand

- Project Management Certification (e.g. PMP)
- Professional Engineer
- American Society of Mechanical Engineers (ASME) Certified
- Commercial Driver's License
- Certified Control Systems Technician

Top Skills in Demand by Employers

TECHNICAL AND SPECIALIZED SKILLS	FOUNDATIONAL SKILLS
1. Repair	1. Computer Skills
2. SCADA Industrial Control Systems	2. Microsoft Office
3. Forklift Operation	3. Troubleshooting
4. Mathematics	4. Planning
5. Electrical Systems	5. Organizational Skills
6. Energy Services	6. Microsoft Excel
7. Inspection	7. Project Management
8. Environmental Regulations	8. Cost Estimation
9. JavaScript	9. Team Work
10. Blueprints	10. Writing

ARCHITECTURAL AND CIVIL DRAFTERS

SOC Code: 17-3011

Alternate Titles

Intern Architect
Drafter
Draftsman
Architectural Designer
Architectural Intern
Project Manager
Computer-Aided Design (CAD) Technician
Drafting Technician
Civil CAD Designer

Career Connections

Military Connections

Architectural and Civil Drafters are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Engineering Services
Architectural Services
Surveying and Mapping Services
Local Government
Building Inspection Services

Architectural and Civil Drafters prepare detailed drawings of architectural and structural features of buildings or drawings and topographical relief maps used in civil engineering projects, such as highways, bridges, and public works. They use knowledge of building materials, engineering practices, and mathematics to complete drawings. Tasks Architectural and Civil Drafters are responsible for include, but are not limited to:

- Operate computer-aided drafting (CAD) equipment or conventional drafting station to produce designs, working drawings, charts, forms and records.
- Analyze building codes, by-laws, space and site requirements in regard to architectural designs.
- Draw maps or diagrams using cross-sections and surveys, to represent elevations, topographical contours, subsurface formations and structures.

Education Requirements

Architectural and Civil Drafters typically have at least an Associate's degree. Many Architectural Drafters have a Bachelor's degree.

Basic Work Requirements

Architectural and Civil Drafters are required to:

- Utilize electronic mail
- Participate in face-to-face discussions with individuals or teams
- Utilize the telephone
- Work with a group or team
- Be exact and/or highly accurate

Top Competencies

Knowledge	Skills	Abilities
Design	Active Listening	Near Vision
English Language	Reading Comprehension	Written Comprehension
Building and Construction	Critical Thinking	Oral Comprehension
Engineering and Technology	Speaking	Visualization
Mathematics	Writing	Problem Sensitivity



Current Employment:
2,407 Regional Jobs
83,700 National Jobs



-5.3%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$14.50 - \$17.50 per hour

Experienced Wages:
\$21.00 - \$26.50 per hour



Associate's Degree Required

SURVEYING AND MAPPING TECHNICIANS

SOC Code: 17-3031

Alternate Titles

Survey Crew Chief
Instrument Man (I-Man)
Chainman
Rodman
Instrument Operator
Stereoplotter Operator
Photogrammetric Technician
Hydrographic Surveyor
Aerotriangulation Specialist

Career Connections

Military Connections

Surveying and Mapping Technicians are similar to the following military occupational classifications:

Air Force: N/A

Army: 13E, 13F, 13P, 14E, 14S, 18C, 19D, 35G

Coast Guard: N/A

Marine Corps: 0241, 0261

Navy: 3999, IS

Industry Connections

Other industries that employ this occupation include:

Engineering Services
Local Government
Architectural Services
Surveying and Mapping Services
Building Inspection Services

Surveying and Mapping Technicians perform surveying and mapping duties to obtain data used for construction, mapmaking, boundary location, mining, or other purposes. They calculate mapmaking information and create maps from surveying notes, aerial photography, satellite data, or other maps. Tasks Surveying and Mapping Technicians are responsible for include, but are not limited to:

- Operate surveying instruments such as prisms, theodolites, and distance-measuring equipment.
- Perform calculations to determine earth curvature, atmospheric impacts on measurements, traverse closures and adjustments, and placement of markers.
- Check all layers of maps to ensure accuracy, identifying and marking errors and making corrections.
- Determine scales, line sizes, or colors to be used for hard copies of computerized maps, using plotters.

Education Requirements

Surveying and Mapping Technicians typically have at least a high school diploma or the equivalent and moderate-term on-the-job training.

Basic Work Requirements

Surveying and Mapping Technicians are required to:

- Be exact and/or highly accurate
- Participate in face-to-face discussions with individuals or teams
- Work with others in a group or team
- Exercise the freedom to make decisions without supervision

Top Competencies

Knowledge	Skills	Abilities
Mathematics	Critical Thinking	Near Vision
Geography	Mathematics	Deductive Reasoning
Computers and Electronics	Reading Comprehension	Problem Sensitivity
English Language	Complex Problem Solving	Written Comprehension
Design	Judgment and Decision Making	Mathematical Reasoning



Current Employment:
1,013 Regional Jobs
48,277 National Jobs



4.3%

Projected Regional Growth
(2013-2018)

Entry Wages:
\$11.50 - \$13.50 per hour

Experienced Wages:
\$17.00 - \$21.00 per hour



**Moderate-term On-the-Job
Training Required**

CIVIL ENGINEERING TECHNICIANS

SOC Code: 17-3022

Alternate Titles

Engineering Technician
Civil Engineering Designer
Engineering Assistant
Transportation Engineering Technician
Civil Designer
Engineering Specialist
Civil Engineering Assistant
Construction Analyst
Design Technician

Career Connections

Military Connections

Civil Engineering Technicians are similar to the following military occupational classifications:

Air Force: 3E511, 3E531, 3E551, 3E571, 3E591

Army: 12C, 12T, 18C

Coast Guard: N/A

Marine Corps: 1361

Navy: 5503

Industry Connections

Other industries that employ this occupation include:

Engineering Services
Local and State Government
Testing Laboratories

Civil Engineering Technicians apply theory and principles of civil engineering in planning, designing, and overseeing construction and maintenance of structures and facilities under the direction of engineering staff or physical scientists. Tasks Civil Engineering Technicians are responsible for include, but are not limited to:

- Draft dimensional drawings and design layouts for projects and to ensure conformance to specifications.
- Calculate dimensions, square footage, profile and component specifications, and material quantities using calculator or computer.
- Read and review project blueprints and structural specifications to determine dimensions of structure or system and material requirements.
- Confer with supervisor to determine project details such as plan preparation, acceptance testing, and evaluation of field conditions.

Education Requirements

Civil Engineering Technicians typically have an Associate's degree.

Basic Work Requirements

Civil Engineering Technicians are required to:

- Participate in face-to-face discussions with individuals or teams
- Work indoors in environmentally controlled conditions
- Be exact and/or highly accurate
- Utilize electronic mail
- Work with others in a group or team

Top Competencies

Knowledge	Skills	Abilities
Building and Construction	Reading Comprehension	Near Vision
Engineering and Technology	Active Listening	Oral Comprehension
Mathematics	Critical Thinking	Oral Expression
Design	Writing	Written Expression
Public Safety and Security	Speaking	Written Comprehension



Current Employment:

1,621 Regional Jobs
71,474 National Jobs



5.4%

Projected Regional Growth
(2013-2018)

Entry Wages:

\$15.00 - \$18.00 per hour

Experienced Wages:

\$22.00- \$26.50 per hour



Associate's Degree Required

ELECTRONICS ENGINEERING TECHNICIANS

SOC Code: 17-3023

Alternate Titles

Electronics Technician
Engineering Technician
Test Technician
Technician
Refurbish Technician
Electrical Technician
Electronics Test Technician
Failure Analysis Technician
(FA Technician)

Career Connections

Military Connections

Electronics Engineering Technicians are similar to the following military occupational classifications:

Air Force: N/A

Army: 13C, 18E, 29E, 91K, 94H

Coast Guard: N/A

Marine Corps: N/A

Navy: AG, CTT, ETR, ETV, GM, MM-ELT, MME, MMW

Industry Connections

Other industries that employ this occupation include:

Engineering Services

US Postal Service

Printed Circuit Assembly
Manufacturing

Search, Detection, Navigation,
Guidance and Nautical System
and Instrument Manufacturing

Electronics Engineering Technicians build, test, troubleshoot, and modify developmental and production electronic components, equipment, and systems, such as computer equipment and machine tool numerical controls, applying principles of electronics, electrical circuitry, engineering mathematics, electronic and electrical testing, and physics. Tasks Electronics Engineering Technicians are responsible for include, but are not limited to:

- Read blueprints, diagrams, schematic drawings, or engineering instructions to assemble electronics units.
- Test electronics units and analyze results to evaluate performance and determine need for adjustment.
- Perform preventative maintenance or calibration of equipment or systems.
- Assemble, test, or maintain circuitry or electronic components.

Education Requirements

Electronics Engineering Technicians typically have an Associate's degree.

Basic Work Requirements

Electronics Engineering Technicians are required to:

- Participate in face-to-face discussions with individuals or teams
- Utilize electronic mail
- Utilize the telephone
- Exercise the freedom to make decisions without supervision
- Work with others in a group or team

Top Competencies

Knowledge	Skills	Abilities
Engineering and Technology	Reading Comprehension	Problem Sensitivity
Computers and Electronics	Complex Problem Solving	Oral Comprehension
Mechanical	Time Management	Written Comprehension
Telecommunications	Critical Thinking	Oral Expression
English Language	Speaking	Deductive Reasoning



Current Employment:
3,547 Regional Jobs
152,578 National Jobs



-0.2%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$15.50 - \$19.50 per hour

Experienced Wages:
\$25.50- \$31.00 per hour



Associate's Degree Required

ENVIRONMENTAL ENGINEERING TECHNICIANS

SOC Code: 17-3025

Alternate Titles

Environmental Technician
Environmental Specialist
Engineering Technician
Industrial Waste Inspector
Engineer Technician
Environmental Engineering Assistant
Environmental Field Technician
Industrial Waste Technician

Career Connections

Military Connections

Environmental Engineering Technicians are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Engineering Services

Local and State Government

Testing Laboratories

Management Consulting Services

Environmental Engineering Technicians apply theory and principles of environmental engineering to modify, test, and operate equipment and devices used in the prevention, control, and remediation of environmental problems, including waste treatment and site remediation, under the direction of engineering staff or scientist. They may assist in the development of environmental remediation devices. Tasks Environmental Engineering Technicians are responsible for include, but are not limited to:

- Perform laboratory work such as logging numerical and visual observations, preparing and packaging samples, and recording test results.
- Maintain project logbook records or computer program files.
- Receive, set up, test, or decontaminate equipment.
- Assist in the cleanup of hazardous material spills.

Education Requirements

Environmental Engineering Technicians typically have an Associate's degree.

Basic Work Requirements

Environmental Engineering Technicians are required to:

- Utilize electronic mail
- Be exact and/or highly accurate
- Utilize the telephone
- Participate in face-to-face discussions with individuals or teams
- Work with others in a group or team

Top Competencies

Knowledge	Skills	Abilities
Engineering and Technology	Active Listening	Written Comprehension
Mathematics	Reading Comprehension	Oral Comprehension
English Language	Critical Thinking	Problem Sensitivity
Chemistry	Active Learning	Information Ordering
Design	Speaking	Inductive Reasoning



Current Employment:
517 Regional Jobs
20,481 National Jobs



6.6%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$14.50 - \$16.50 per hour

Experienced Wages:
\$19.00 - \$24.00 per hour



Associate's Degree Required

MECHANICAL ENGINEERING TECHNICIANS

SOC Code: 17-3027

Alternate Titles

Mechanical Designer
Research and Development Technician
Engineering Lab Technician
Equipment Engineer
Process Technician
Design Engineer
Engineering Technical Analyst
Lab Technician

Career Connections

Military Connections

Mechanical Engineering Technicians are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Engineering Services

Corporate, Subsidiary and Regional Managing Offices

Research and Development in Physical, Engineering, and Life Sciences

Iron and Steel Mills

Mechanical Engineering Technicians apply theory and principles of mechanical engineering to modify, develop, test, or calibrate machinery and equipment under direction of engineering staff or physical scientists. Tasks Mechanical Engineering Technicians are responsible for include, but are not limited to:

- Read dials and meters to determine amperage, voltage, electrical output and input at specific operating temperature to analyze parts performance.
- Analyze test results in relation to design or rated specifications and test objectives.
- Evaluate tool drawing designs by measuring drawing dimensions and comparing with original specifications.
- Devise and fabricate mechanical components for products such as industrial machinery or equipment.

Education Requirements

Mechanical Engineering Technicians typically have an Associate's degree.

Basic Work Requirements

Mechanical Engineering Technicians are required to:

- Participate in face-to-face discussions with individuals or teams
- Exercise the freedom to make decisions without supervision
- Work indoors in environmentally controlled conditions
- Be in contact with others through face-to-face conversations, by telephone, or otherwise
- Be exact and/or highly accurate

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Reading Comprehension	Oral Comprehension
Engineering and Technology	Active Listening	Deductive Reasoning
Design	Critical Thinking	Problem Sensitivity
Mathematics	Operation Monitoring	Oral Expression
Production and Processing	Speaking	Near Vision



Current Employment:

1,244 Regional Jobs
46,387 National Jobs



-1.0%

Projected Regional Growth
(2013-2018)

Entry Wages:

\$16.00 - \$19.00 per hour

Experienced Wages:

\$23.50 - \$28.50 per hour



Associate's Degree Required

CHEMICAL TECHNICIANS

SOC Code: 19-4031

Alternate Titles

Laboratory Technician
Laboratory Analyst
Research Technician
Analytical Lab Technician
Laboratory Tester
Research and Development Technician
Environmental Lab Technician
Formulation Technician

Career Connections

Military Connections

Chemical Technicians are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Testing Laboratories

Research and Development in Physical, Engineering and Life Sciences

Paint and Coating Manufacturing

Pharmaceutical Preparation Manufacturing

Chemical Technicians conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analyses of solids, liquids, and gaseous materials for research and development of new products or processes, quality control and maintenance of environmental standards. Tasks Chemical Technicians are responsible for include, but are not limited to:

- Monitor product quality to ensure compliance with standards and specifications.
- Compile and interpret results of tests and analyses.
- Set up and conduct chemical experiments, tests, and analyses, using techniques such as chromatography, spectroscopy, physical or chemical separation techniques, or microscopy.
- Conduct chemical or physical laboratory tests to assist scientists in making qualitative or quantitative analyses of solids, liquids, or gaseous materials.

Education Requirements

Chemical Technicians typically have an Associate's degree.

Basic Work Requirements

Chemical Technicians are required to:

- Work indoors in environmentally controlled conditions
- Wear common protective/safety equipment
- Be exact and/or highly accurate
- Be exposed to hazardous conditions
- Utilize electronic mail

Top Competencies

Knowledge	Skills	Abilities
Chemistry	Science	Written Comprehension
English Language	Reading Comprehension	Near Vision
Computers and Electronics	Critical Thinking	Inductive Reasoning
Mathematics	Monitoring	Deductive Reasoning
Mechanical	Writing	Written Expression



Current Employment:
2,278 Regional Jobs
62,896 National Jobs



0.2%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$12.50 - \$15.00 per hour

Experienced Wages:
\$18.50 - \$23.00 per hour



Associate's Degree Required

OCCUPATIONAL HEALTH AND SAFETY TECHNICIANS

SOC Code: 29-9012

Alternate Titles

Construction Safety Consultant
Director of Safety
Environmental, Health, and Safety EHS Leader
Health and Safety Tech
Plant Safety Leader
Safety Professional
Industrial Hygiene Consultant
Safety Specialist

Career Connections

Military Connections

Occupational Health and Safety Technicians are similar to the following military occupational classifications:

Air Force: 1S011, 1S031, 1S051, 1S071, 3E413, 3E433, 3E453, 3E473, 4E011, 4E031, 4E051, 4E071

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: 6021, 8407, MMW, STG

Industry Connections

Other industries that employ this occupation include:

Local and State Government
Support Activities for Oil and Gas Operations
General Medical and Surgical Hospitals
Bituminous Coal
Underground Mining

Occupational Health and Safety Technicians collect data on work environments for analysis by occupational health and safety specialists. They implement and conduct evaluation of programs designed to limit chemical, physical, biological, and ergonomic risks to workers. Tasks Occupational Health and Safety Technicians are responsible for include, but are not limited to:

- Test workplaces for environmental hazards, such as radiation, chemical hazards, or excessive noise.
- Verify availability or monitor use of safety equipment.
- Supply, operate, or maintain personal protective equipment.
- Evaluate situations when a worker has refused to work on the grounds that danger or potential harm exists.

Education Requirements

Occupational Health and Safety Technicians typically have at least a high school diploma or the equivalent and moderate-term on-the-job training.

Basic Work Requirements

Occupational Health and Safety Technicians are required to:

- Utilize electronic mail
- Utilize the telephone
- Participate in face-to-face discussions with individuals or teams
- Work with a group or team
- Be in contact with others through face-to-face conversations, by telephone, or otherwise

Top Competencies

Knowledge	Skills	Abilities
English Language	Speaking	Oral Comprehension
Education and Training	Active Listening	Oral Expression
Law and Government	Reading Comprehension	Deductive Reasoning
Public Safety and Security	Critical Thinking	Inductive Reasoning
Customer and Personal Safety	Writing	Written Comprehension



Current Employment:
355 Regional Jobs
11,522 National Jobs



3.4%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$12.50 - \$15.50 per hour

Experienced Wages:
\$20.00 - \$24.50 per hour



**Moderate-term On-the-Job
Training Required**



MANAGEMENT AND SUPERVISORY OCCUPATIONS



Management Occupations: Real-time Snap Shot

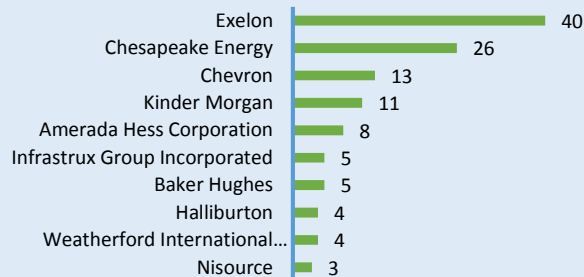
Occupational profiles follow for three (3) Management occupations. Between the two-year period of January 1, 2011 and December 31, 2012, there were a total of 160 online job postings for these occupations in the region. Real-time occupational data examined from these online job postings provides insight into the certifications, technical and specialized skills and hiring needs of employers in the Oil and Natural Gas Industry. Real-time information is included below for the following occupations:

- Construction Managers
- Supply Chain Managers
- Risk Management Specialist

The chart to the right depicts the companies with the most Management job postings in the region during the period of January 1, 2011 through December 31, 2013. As the postings show, there are job opportunities from energy companies and services companies and contractors.

In analyzing these actual job postings, information about the specific skills and certifications sought by employers emerges. For example, the job postings often list specific certifications sought by employers for these positions as well as the technical and foundational skills they look for in successful candidates.

Companies with the Most Job Postings (Jan 2011 – Dec 2013)



Top Certifications in Demand

- Project Management Certification (e.g PMP)
- Professional Engineer
- First Aid CPR AED
- American Society Of Mechanical Engineers (ASME) Certified
- Lean Six Sigma

Top Skills in Demand by Employers

SPECIALIZED AND TECHNICAL SKILLS	FOUNDATIONAL SKILLS
1. Contract Management	1. Project Management
2. Natural Gas: Pollution Reduction, Removal, and Remediation	2. Leadership
3. Permitting	3. Communication Skills
4. Repair	4. Budgeting
5. Scheduling	5. Supervisory Skills
6. Cash Flow Analysis	6. Planning
7. Inspection	7. Microsoft Excel
8. Government Regulations	8. Cost Estimation
9. Construction Management	9. Organizational Skills
10. Pipeline Design	10. Management

CONSTRUCTION MANAGERS

SOC Code: 11-9021

Alternate Titles

Project Manager
Construction Superintendent
Estimator
Concrete Foreman
Construction Area Manager
Construction Foreman
General Contractor
Project Superintendent

Career Connections

Military Connections

Construction Managers are similar to the following military occupational classifications:

Air Force: N/A
Army: 12C, 12D, 18C, 51A
Coast Guard: N/A
Marine Corps: 1302
Navy: 4205, 4215, 4230, 4275, 4305, 4310, 4315, 4330, 4340, 9026

Industry Connections

Other industries that employ this occupation include:

Commercial and Institutional Building Construction
Plumbing, Heating and Air-Conditioning Contractors
Residential Remodelers
Industrial Building Construction

Construction Managers plan, direct, or coordinate, usually through subordinate supervisory personnel, activities concerned with the construction and maintenance of structures, facilities, and systems. They participate in the conceptual development of a construction project and oversee its organization, scheduling, budgeting, and implementation. Tasks Construction Managers are responsible for include, but are not limited to:

- Schedule and budget time to meet deadlines.
- Confer with supervisory personnel, owners, contractors, or design professionals on matters such as procedures, complaints, or construction problems.
- Prepare contracts and negotiate revisions with architects, consultants, clients, and suppliers.
- Prepare and submit budget estimates, progress reports, or cost tracking reports.

Education Requirements

Construction Managers typically have a Bachelor's degree.

Basic Work Requirements

Construction Managers are required to:

- Utilize electronic mail
- Utilize the telephone
- Participate in face-to-face discussions with individuals or teams
- Typically work a high number of hours in one week
- Be in contact with others through face-to-face conversations, by telephone, or otherwise

Top Competencies

Knowledge	Skills	Abilities
Building and Construction	Time Management	Oral Comprehension
Administration and Management	Management of Personnel Resources	Problem Sensitivity
Customer and Personal Service	Critical Thinking	Oral Expression
Engineering and Technology	Speaking	Written Comprehension
Design	Active Listening	Deductive Reasoning



Current Employment:
3,334 Regional Jobs
200,104 National Jobs



12.7%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$23.50 - \$30.00 per hour

Experienced Wages:
\$37.50 - \$49.00 per hour



Bachelor's Degree Required

SUPPLY CHAIN MANAGERS

SOC Code: 11-9199

Alternate Titles

Supply Chain Director
Global Supply Chain Director
Supply Chain Vice President

Career Connections

Military Connections

Supply Chain Managers are similar to the following military occupational classifications:

Air Force: N/A

Army: 67K, 91C, 93B

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Corporate, Subsidiary and Regional Managing Offices

Local, State and Federal Government

General Medical and Surgical Hospitals

Supply Chain Managers coordinate production, purchasing, warehousing, distribution, or financial forecasting services or activities to limit costs and improve accuracy, customer service, or safety. They examine streamline activities to meet product distribution needs. They also direct the movement, storage, or processing of inventory. Tasks Supply Chain Managers are responsible for include, but are not limited to:

- Confer with supply chain planners to forecast demand or create supply plans that ensure availability of materials or products.
- Monitor forecasts and quotas to identify changes or to determine their effect on supply chain activities.
- Define performance metrics for measurement, comparison, or evaluation of supply chain factors, such as product cost or quality.
- Analyze inventories to increase inventory turns, reduce waste, or optimize customer service.

Education Requirements

Supply Chain Managers typically have a Bachelor's degree.

Basic Work Requirements

Supply Chain Managers are required to:

- Utilize electronic mail
- Utilize the telephone
- Participate in face-to-face discussions with individuals or teams
- Work indoors in environmentally controlled conditions
- Work the duration of a typical work week

Top Competencies

Knowledge	Skills	Abilities
Production and Processing	Active Listening	Oral Comprehension
Administration and Management	Reading Comprehension	Oral Expression
Transportation	Monitoring	Written Comprehension
English Language	Coordination	Written Expression
Customer and Personal Service	Complex Problem Solving	Problem Sensitivity



Current Employment:
4,489 Regional Jobs
360,935 National Jobs



5.4%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$23.00 - \$32.00 per hour

Experienced Wages:
\$42.50 - \$55.00 per hour



Bachelor's Degree Required

RISK MANAGEMENT SPECIALISTS

SOC Code: 13-2099

Alternate Titles

Risk Management Director
Chief Risk Officer
Risk Manager
Credit Risk Management Director
Global Risk Management Director
Risk and Insurance Consultant

Career Connections

Military Connections

Risk Management Specialists are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Commercial Banking
Corporate, Subsidiary and Regional Managing Offices
State and Federal Government
Credit Unions

Risk Management Specialists analyze and manage risk management issues by identifying, measuring, and making decisions on operational or enterprise risks for an organization. Tasks Risk Management Specialists are responsible for include, but are not limited to:

- Document, and ensure communication of, key risks.
- Maintain data quality of risk management systems.
- Recommend ways to control or reduce risk.
- Identify key risks and mitigating factors of potential investments, such as asset types and values, legal and ownership structures, professional reputations, customer bases, or industry segments.

Education Requirements

Risk Management Specialists typically have a Bachelor's degree.

Basic Work Requirements

Risk Management Specialists are required to:

- Utilize electronic mail
- Utilize the telephone
- Participate in face-to-face discussions with individuals or teams
- Typically work a high number of hours in one week
- Spend time sitting

Top Competencies

Knowledge	Skills	Abilities
Mathematics	Reading Comprehension	Problem Sensitivity
English Language	Critical Thinking	Deductive Reasoning
Economics and Accounting	Active Listening	Oral Expression
Administration and Management	Systems Analysis	Oral Comprehension
Computers and Electronics	Speaking	Inductive Reasoning



Current Employment:
2,047 Regional Jobs
157,866 National Jobs



4.0%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$16.50 - \$21.00 per hour

Experienced Wages:
\$27.50 - \$35.50 per hour



Bachelor's Degree Required



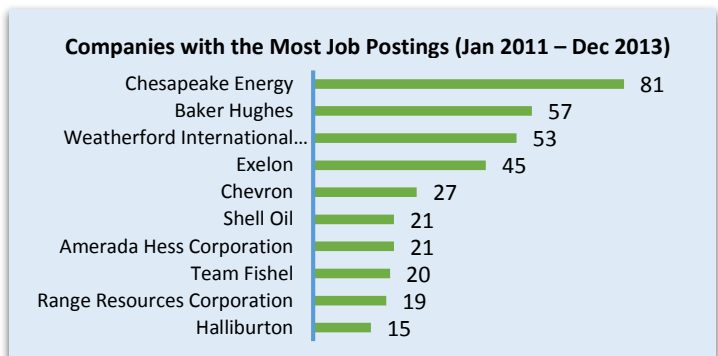
Supervisory Occupations: Real-time Snap Shot

Occupational profiles follow for three (3) Supervisory occupations. Between the two-year period of January 1, 2011 and December 31, 2012, there were a total 511 online job postings for these occupations in the region. Real-time occupational data examined from these online job postings provides insight into the certifications, technical and specialized skills and hiring needs of employers in the Oil and Natural Gas Industry. Real-time information is included below for the following occupations:

- Supervisors of Installers, Mechanics and Repairers
- Supervisors of Construction and Extraction Workers
- Supervisors of Production and Operating Workers

The chart to the right depicts the companies with the most Supervisory job postings in the region during the period of January 1, 2011 through December 31, 2013. As the postings show, there are job opportunities from energy companies and services companies and contractors.

In analyzing these actual job postings, information about the specific skills and certifications sought by employers emerges. For example, the job postings often list specific certifications sought by employers for these positions as well as the technical and foundational skills they look for in successful candidates.



Top Certifications in Demand

- American Society of Mechanical Engineers (ASME) Certified
- Electrical Contractor
- Electrician Certification
- Inspection Certification

Top Skills in Demand by Employers

SPECIALIZED AND TECHNICAL SKILLS	FOUNDATIONAL SKILLS
1. Scheduling and Supply Chain Logistics	1. Supervisory Skills
2. Repair	2. Communication Skills
3. Inspection	3. Leadership
4. Procurement	4. Planning
5. Mentoring	5. Computer Skills
6. Schematic Diagrams	6. Microsoft Office
7. Natural Gas	7. Writing
8. Contract Management	8. Organizational Skills
9. JavaScript	9. Problem Solving
10. Basic Financial Transactions	10. Cost Control

SUPERVISORS OF CONSTRUCTION AND EXTRACTION WORKERS

SOC Code: 47-1011

Alternate Titles

Construction Foreman
Construction Superintendent
Construction Supervisor
Field Supervisor
Foreman
Project Superintendent
Site Superintendent
Supervisor

Career Connections

Military Connections

Supervisors of Construction and Extraction Workers are similar to the following military occupational classifications:

Air Force: 3E000, 3E271, 3E290, 3E371, 3E800, 3E900

Army: 12A, 12H, 12N, 12X, 12Z, 18C, 19D

Coast Guard: N/A

Marine Corps: 1169, 1349

Navy: CU, EQ, UC

Industry Connections

Other industries that employ this occupation include:

Commercial & Institutional Building Construction

Local Government

Support Activities for Oil & Gas Operations

Bituminous Coal

Underground Mining

Supervisors of Construction and Extraction Workers directly supervise and coordinate activities of construction or extraction workers. Tasks Supervisors of Construction and Extraction Workers are responsible for include, but are not limited to:

- Supervise, coordinate, or schedule the activities of construction or extractive workers.
- Read specifications, such as blueprints, to determine construction requirements or to plan procedures.
- Inspect work progress, equipment, or construction sites to verify safety and ensure specifications are met.
- Locate, measure, and mark site locations or placement of structures or equipment.

Education Requirements

Supervisors of Construction and Extraction Workers typically have at least a high school diploma or the equivalent as well as work experience in a related occupation.

Basic Work Requirements

Supervisors of Construction and Extraction Workers are required to:

- Participate in face-to-face discussions with individuals or teams
- Take responsibility for outcomes and results
- Utilize the telephone
- Work outdoors, exposed to all weather conditions
- Wear common protective/safety equipment

Top Competencies

Knowledge	Skills	Abilities
Production and Processing	Active Listening	Oral Comprehension
Building and Construction	Coordination	Oral Expression
Customer and Personal Service	Critical Thinking	Problem Sensitivity
Administration and Management	Speaking	Near Vision
Mechanical	Management of Personnel Resources	Information Ordering



Current Employment:

11,775 Regional Jobs
470,653 National Jobs



10.2%

Projected Regional Growth
(2013-2018)

Entry Wages:

\$18.50 - \$22.50 per hour

Experienced Wages:

\$28.00 - \$36.00 per hour



Work Experience in a Related Occupation Required

**Note: There are additional Military Occupational Codes which align with this occupation. Visit MyNextMove.org to view the complete listing.*

SUPERVISORS OF INSTALLERS, MECHANICS AND REPAIRERS

SOC Code: 49-1011

Alternate Titles

Maintenance Foreman
Production Crew Supervisor
Service Manager
Crew Leader
Facility Maintenance Supervisor
Electrical & Instrumentation Supervisor (E&I Supervisor)

Career Connections

Military Connections

Supervisors of Installers, Mechanics and Repairers are similar to the following military occupational classifications:*

Air Force: N/A

Army: 15K, 15Z, 913A, 915A, 915S, 919A, 91X

Coast Guard: 013, 015, 017, 62, 64

Marine Corps: N/A

Navy: 1104, 3373, 3376, 4204, 4260, 5977, 6704, 6940, 6978, 7241, 7609, 7930, 8189-8199, 8300, 8800, 9348

Industry Connections

Other industries that employ this occupation include:

New Car Dealers
Local Government
General Automotive Repair
Plumbing, Heating & Air-Conditioning Contractors

Supervisors of Installers, Mechanics and Repairers directly supervise and coordinate the activities of mechanics, installers, and repairers. Tasks Supervisors of Installers, Mechanics and Repairers are responsible for include, but are not limited to:

- Determine schedules, sequences, and assignments for work activities, based on work priority, quantity of equipment, and skill of personnel.
- Monitor employees' work levels and review work performance.
- Monitor tool and part inventories and the condition of shops to ensure adequate working conditions.
- Investigate accidents or injuries and prepare reports of findings.

Education Requirements

Supervisors of Installers, Mechanics and Repairers typically have at least a high school diploma or the equivalent as well as work experience in a related occupation.

Basic Work Requirements

Supervisors of Installers, Mechanics and Repairers are required to:

- Utilize the telephone
- Participate in face-to-face discussions with individuals or teams
- Utilize electronic mail
- Be in contact with others through face-to-face conversations, by telephone, or otherwise
- Frequently make decisions

Top Competencies

Knowledge	Skills	Abilities
Administration and Management	Management of Personnel Resources	Oral Comprehension
Mechanical	Monitoring	Problem Sensitivity
Customer and Personal Service	Time Management	Oral Expression
Production and Processing	Coordination	Written Comprehension
Personnel and Human Resources	Critical Thinking	Deductive Reasoning



Current Employment:
9,970 Regional Jobs
426,630 National Jobs



2.3%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$18.00 - \$22.00 per hour

Experienced Wages:
\$27.50 - \$34.50 per hour



Work Experience in a Related Occupation Required

*Note: There are additional Military Occupational Codes which align with this occupation. Visit MyNextMove.org to view the complete listing.

SUPERVISORS OF PRODUCTION AND OPERATING WORKERS

SOC Code: 51-1011

Alternate Titles

Production Supervisor
Manufacturing Supervisor
Team Leader
Shift Supervisor
Production Manager
Assembly Supervisor
Plant Manager
Department Manager
Molding Supervisor

Career Connections

Military Connections

Supervisors of Production and Operating Workers are similar to the following military occupational classifications:

Air Force: 2F000, 2F091, 29P000, 2P091, 3E090, 3E471, 3E490

Army: 914A

Coast Guard: N/A

Marine Corps: N/A

Navy: 3301, 3302, 3363, 3364, 3365, 3366, 3393, 3394, 3395, 3396, 4206, 4255, 9296

Industry Connections

Other industries that employ this occupation include:

Machine Shops
Plastics Product Manufacturing
Iron and Steel Mills

Supervisors of Production and Operating Workers directly supervise and coordinate the activities of production and operating workers, such as inspectors, machine setters and operators, assemblers, fabricators, and plant and system operators. Tasks Supervisors of Production and Operating Workers are responsible for include, but are not limited to:

- Enforce safety and sanitation regulations.
- Direct employees engaged in the production of goods.
- Confer with other supervisors to coordinate operations and activities within or between departments.
- Plan and establish work schedules, assignments, and production sequences to meet production goals.

Education Requirements

Supervisors of Production and Operating Workers typically have at least a high school diploma or the equivalent as well as work experience in a related field.

Basic Work Requirements

Supervisors of Production and Operating Workers are required to:

- Be exposed to distracting/uncomfortable noise levels
- Be in contact with others through face-to-face conversations, by telephone, or otherwise
- Participate in face-to-face discussions with individuals or teams
- Work indoors, not in environmentally controlled conditions
- Be responsible for others' health and safety

Top Competencies

Knowledge	Skills	Abilities
Production and Processing	Speaking	Oral Comprehension
Mechanical	Active Listening	Oral Expression
Administration and Management	Critical Thinking	Deductive Reasoning
Personnel and Human Resources	Management of Personnel Resources	Problem Sensitivity
Engineering and Technology	Time Management	Written Comprehension



Current Employment:

20,010 Regional Jobs
577,494 National Jobs



-4.7%

Projected Regional Growth
(2013-2018)

Entry Wages:

\$15.50 - \$19.50 per hour

Experienced Wages:

\$25.00- \$31.50 per hour



Work Experience in a Related Occupation Required



CONSTRUCTION OCCUPATIONS



Construction Occupations: Real-time Snap Shot

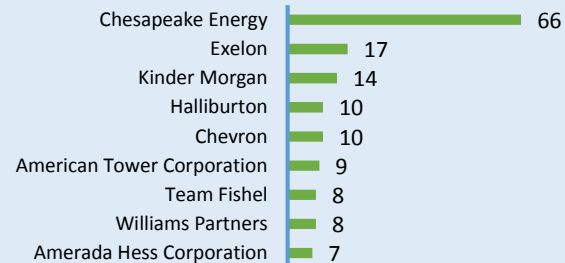
Occupational profiles follow for eight (8) Construction occupations. Between the two-year period of January 1, 2011 and December 31, 2012, there were a total of 210 online job postings for these occupations in the region. Real-time occupational data examined from these online job postings provides insight into the certifications, technical and specialized skills and hiring needs of employers in the Oil and Natural Gas Industry. Real-time information is included below for the following occupations:

- Production, Planning and Expediting Clerks
- Carpenters
- Construction Laborers
- Paving, Surfacing and Tamping Equipment Operators
- Operating Engineers
- Pipelayers
- Plumbers, Pipefitters, and Steamfitters
- Construction and Building Inspectors

The chart to the right depicts the companies with the most Construction job postings in the region during the period of January 1, 2011 through December 31, 2013. As the postings show, there are job opportunities from energy companies and services companies and contractors.

In analyzing these actual job postings, information about the specific skills and certifications sought by employers emerges. For example, the job postings often list specific certifications sought by employers for these positions as well as the technical and foundational skills they look for in successful candidates.

Companies with the Most Job Postings (Jan 2011 – Dec 2013)



Top Certifications in Demand

- First Aid CPR/AED
- American Society of Mechanical Engineers (ASME) Certified
- Air Brake Certified
- Forklift Operator Certification
- Commercial Driver's License

Top Skills in Demand by Employers

SPECIALIZED AND TECHNICAL SKILLS	FOUNDATIONAL SKILLS
1. Repair	1. Computer Skills
2. Scheduling	2. Microsoft Office
3. Engineering Support	3. Communication Skills
4. Equipment Design	4. Organizational Skills
5. Inspection	5. Planning
6. Construction Management	6. Microsoft Excel
7. Equipment Operation	7. Writing
8. Basic Financial Transactions	8. Project Management
9. Blueprints	9. Preparing Reports
10. Soil Conservation	10. Leadership

PRODUCTION, PLANNING, AND EXPEDITING CLERKS

SOC Code: 43-5061

Alternate Titles

Production Scheduler
Production Planner
Production Manager
Production Controller
Production Planning Manager
Master Scheduler
Production Control Coordinator
Production Supervisor

Career Connections

Military Connections

Production, Planning and Expediting Clerks are similar to the following military occupational classifications:

Air Force: 2R011, 2R031, 2R051, 2R111, 2R131, 2R151

Army: N/A

Coast Guard: N/A

Marine Corps: 0400, 0411, 0431, 6012, 6018, 6046, 6049

Navy: 6399, 9517, ABE, AZ, GM

Industry Connections

Other industries that employ this occupation include:

Iron and Steel Mills
General Medical and Surgical Hospitals
Wired Telecommunications Carriers

Production, Planning and Expediting Clerks coordinate and expedite the flow of work and materials between departments according to a production schedule. Their duties include reviewing and distributing production, work, and shipment schedules; conferring with department supervisors to determine progress of work and completion dates; and compiling reports on progress of work. Tasks Production, Planning and Expediting Clerks are responsible for include, but are not limited to:

- Examine materials, or products and monitor work processes to assess conformance to standards.
- Review production schedules or work orders to determine personnel or materials requirements.
- Confer with department supervisors to assess progress.
- Revise production schedules due to design changes, labor/material shortages or other interruptions.

Education Requirements

Production, Planning and Expediting Clerks typically have at least a high school diploma or the equivalent and moderate-term on-the-job training.

Basic Work Requirements

Production, Planning and Expediting Clerks are required to:

- Participate in face-to-face discussions with individuals or teams
- Utilize the telephone
- Work indoors in environmentally controlled conditions
- Work under time pressure and meet deadlines
- Utilize electronic mail

Top Competencies

Knowledge	Skills	Abilities
Production and Processing	Reading Comprehension	Written Comprehension
Customer and Personal Service	Active Listening	Oral Comprehension
Computers and Electronics	Critical Thinking	Oral Expression
Administration and Management	Speaking	Written Expression
English Language	Time Management	Near Vision



Current Employment:
8,292 Regional Jobs
282,703 National Jobs



-2.0%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$12.50 - \$16.00 per hour

Experienced Wages:
\$20.50 - \$25.50 per hour



**Moderate-term On-the-Job
Training Required**

CARPENTERS

SOC Code: 47-2031

Alternate Titles

Carpenter
Apprentice Carpenter
Form Carpenter
Journeyman Carpenter
Rough Carpenter
Union Carpenter
Bridge Carpenter
Bridge Repair Crew Person

Career Connections

Military Connections

Carpenters are similar to the following military occupational classifications:

Air Force: 3E311, 3E331, 3E351

Army: 12W

Coast Guard: N/A

Marine Corps: 1300, 1371

Navy: 5999, BU

Industry Connections

Other industries that employ this occupation include:

Residential Remodelers

Commercial and Institutional Building Construction

New Single-Family Housing Construction

Industrial Building Construction

Rough Carpenters build rough wooden structures, such as concrete forms, scaffolds, tunnel, bridge, or sewer supports, billboard signs, and temporary frame shelters, according to sketches, blueprints, or oral instructions. Tasks Carpenters are responsible for include, but are not limited to:

- Measure materials or distances, using square, measuring tape, or rule to lay out work.
- Study blueprints and diagrams to determine dimensions of structure or form to be constructed.
- Cut boards, timbers, or plywood to required size, using handsaw, power saw, or woodworking machine.
- Mark cutting lines on materials, using pencil and scribe.

Education Requirements

Carpenters typically have at least a high school diploma or the equivalent plus long-term on-the-job training.

Basic Work Requirements

Carpenters are required to:

- Wear common protective/safety equipment
- Be in contact with others through face-to-face conversations, by telephone, or otherwise
- Participate in face-to-face discussions with individuals or teams
- Exercise the freedom to make decisions without supervision
- Spend time standing

Top Competencies

Knowledge	Skills	Abilities
Building and Construction	Critical Thinking	Manual Dexterity
Mathematics	Active Listening	Problem Sensitivity
Mechanical	Coordination	Trunk Strength
Design	Judgment and Decision Making	Multi-limb Coordination
Production and Processing	Monitoring	Near Vision



Current Employment:
19,002 Regional Jobs
584,727 National Jobs



3.3%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$11.50 - \$14.00 per hour

Experienced Wages:
\$18.50 - \$23.00 per hour



**Long-term On-the-Job
Training Required**

CONSTRUCTION LABORERS

SOC Code: 47-2061

Alternate Titles

Construction Worker
Curb and Gutter Laborer
Drain Layer
Drop Crew Laborer
Helper
Laborer
Post Framer
Skill Labor
Union Laborer

Career Connections

Military Connections

Construction Laborers are similar to the following military occupational classifications:

Air Force: N/A

Army: 11B, 11C, 12C, 13B, 18C, 19D

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Site Preparation Contractors
Highway, Street, and Bridge Construction
Commercial and Institutional Building Construction
Residential Remodelers

Construction Laborers perform tasks involving physical labor at construction sites. They may operate tools of all types: air hammers, earth tampers, cement mixers, small mechanical hoists, surveying and measuring equipment, and a variety of other equipment and instruments. They may also clean and prepare sites, dig trenches, set braces to support the sides of excavations, erect scaffolding, and clean up rubble, debris and other waste materials. Tasks Construction Laborers are responsible for include, but are not limited to:

- Control traffic passing near, in, or around work zones.
- Prepare construction sites to eliminate hazards.
- Signal equipment operators to facilitate alignment, movement, or adjustment of equipment or materials.
- Read plans, instructions, or specifications to determine work activities.

Education Requirements

Construction Laborers typically have at least a high school diploma or the equivalent plus short-term on-the-job training.

Basic Work Requirements

Construction Laborers are required to:

- Be in contact with others through face-to-face conversations, by telephone, or otherwise
- Wear common protective/safety equipment
- Participate in face-to-face discussions with individuals or teams
- Spend time standing
- Work outdoors, exposed to all weather conditions

Top Competencies

Knowledge	Skills	Abilities
Building and Construction	Active Listening	Manual Dexterity
Mechanical	Coordination	Arm-Hand Strength
Administration and Management	Operation Monitoring	Static Strength
Public Safety and Security	Speaking	Multi-limb Coordination
Mathematics	Reading Comprehension	Oral Comprehension



Current Employment:
21,828 Regional Jobs
801,609 National Jobs



10.2%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$9.50 - \$11.50 per hour

Experienced Wages:
\$15.50 - \$20.50 per hour



**Short-term On-the-Job
Training Required**

PAVING, SURFACING, AND TAMPING EQUIPMENT OPERATORS

SOC Code: 47-2071

Alternate Titles

Equipment Operator (EO)

Paver Operator

Roller Operator

Truck Driver

Screed Operator

Heavy Equipment Operator

Maintenance Equipment Operator (MEO)

Asphalt Raker

Asphalt Paver Operator

Career Connections

Military Connections

Paving, Surfacing and Tamping Equipment Operators are similar to the following military occupational classifications:

Air Force: 3E211, 3E231, 3E251

Army: 12V

Coast Guard: N/A

Marine Corps: N/A

Navy: 5710

Industry Connections

Other industries that employ this occupation include:

Highway, Street and Bridge Construction

Local and State Government

Site Preparation Contractors

Specialty Trade Contractors

Paving, Surfacing and Tamping Equipment Operators use equipment used for applying concrete, asphalt, or other materials to road beds, parking lots, or airport runways and taxiways, or equipment used for tamping gravel, dirt, or other materials. Tasks Paving, Surfacing and Tamping Equipment Operators are responsible for include, but are not limited to:

- Operate machines to spread, smooth, level, or steel-reinforce stone, concrete, or asphalt on road beds.
- Observe distribution of paving material to adjust machine settings or material flow, and indicate low spots for workers to add material.
- Control traffic.
- Light burners or start heating units of machines, and regulate screed temperatures and asphalt flow rates.

Education Requirements

Paving, Surfacing and Tamping Equipment Operators typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Paving, Surfacing and Tamping Equipment Operators are required to:

- Work outdoors, exposed to all weather conditions
- Wear common protective/safety equipment
- Be responsible for others' health and safety
- Spend time using one's hands to control/handle tools
- Be exposed to contaminants

Top Competencies

Knowledge	Skills	Abilities
Public Safety and Security	Operation Monitoring	Problem Sensitivity
Transportation	Operation and Control	Control Precision
Mechanical	Monitoring	Multi-limb Coordination
Building and Construction	Coordination	Rate Control
English Language	Critical Thinking	Reaction Time



Current Employment:

1,599 Regional Jobs

52,936 National Jobs



11.6%

Projected Regional Growth
(2013-2018)

Entry Wages:

\$12.00 - \$14.50 per hour

Experienced Wages:

\$18.50 - \$24.00 per hour



**Moderate-term On-the-Job
Training Required**

OPERATING ENGINEERS

SOC Code: 47-2073

Alternate Titles

Back Hoe Operator
Engineering Equipment Operator
Equipment Operator
Heavy Equipment Operator
Loader Operator
Machine Operator
Motor Grader Operator
Operator
Track Hoe Operator

Career Connections

Military Connections

Operating Engineers are similar to the following military occupational classifications:

Air Force: N/A

Army: 11B, 11C, 13B, 13M, 14E, 18C, 19D

Coast Guard: 681, 682, 683

Marine Corps: 1345, 1372

Navy: 5711, 5712, 5799, EO

Industry Connections

Other industries that employ this occupation include:

Site Preparation Contractors
Local Government
Highway, Street, and Bridge Construction
Bituminous Coal
Underground Mining

Operating Engineers operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. They may repair and maintain equipment in addition to other duties. Tasks Operating Engineers are responsible for include, but are not limited to:

- Learn and follow safety regulations.
- Take actions to avoid potential hazards or obstructions, such as utility lines, other equipment, other workers, or falling objects.
- Locate underground services, such as pipes or wires, prior to beginning work.
- Monitor operations to ensure that health and safety standards are met.

Education Requirements

Operating Engineers typically at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Operating Engineers are required to:

- Work outdoors, exposed to all weather conditions
- Wear common protective/safety equipment
- Participate in face-to-face discussions with individuals or teams
- Spend time using one's hands to control/handle tools
- Sometimes work in very hot or cold temperatures

Top Competencies

Knowledge	Skills	Abilities
Building and Construction	Operation and Control	Control Precision
Mechanical	Operation Monitoring	Depth Perception
Administration and Management	Monitoring	Multi-limb Coordination
Public Safety and Security	Coordination	Near Vision
Mathematics	Equipment Maintenance	Far Vision



Current Employment:
16,462 Regional Jobs
340,380 National Jobs



9.2%

Projected Regional Growth
(2013-2018)

Entry Wages:
\$13.00 - \$15.50 per hour

Experienced Wages:
\$19.50 - \$25.00 per hour



**Moderate-term On-the-Job
Training Required**

PIPELAYERS

SOC Code: 47-2151

Alternate Titles

Pipe Layer
Laborer
Equipment Operator
Construction Laborer
Machine Operator
Skilled Laborer

Career Connections

Military Connections

Pipelayers are similar to the following military occupational classifications:

Air Force: N/A
Army: N/A
Coast Guard: N/A
Marine Corps: N/A
Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Local Government
Water and Sewer Line and Related Structures Construction
Plumbing, Heating, and Air-Conditioning Contractors
Site Preparation Contractors

Pipelayers lay pipe for storm or sanitation sewers, drains, and water mains. They perform any combination of the following tasks: grade trenches or culverts, position pipe, or seal joints. Tasks Pipelayers are responsible for include, but are not limited to:

- Check slopes for conformance to requirements, using levels or lasers.
- Cover pipes with earth or other materials.
- Connect pipe pieces and seal joints, using welding equipment, cement, or glue.
- Cut pipes to required lengths.

Education Requirements

Pipelayers typically have at least a high school diploma or the equivalent plus short-term on-the-job training.

Basic Work Requirements

Pipelayers are required to:

- Wear common protective/safety equipment
- Work outdoors, exposed to all weather conditions
- Participate in face-to-face discussions with individuals or a team
- Be exposed to distracting/uncomfortable noise levels
- Be in contact with others through face-to-face conversations, by telephone, or otherwise

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Operation Monitoring	Oral Comprehension
English Language	Operation and Control	Control Precision
Building and Construction	Active Listening	Oral Expression
Public Safety and Security	Quality Control Analysis	Arm-Hand Steadiness
Mathematics	Critical Thinking	Manual Dexterity



Current Employment:
996 Regional Jobs
46,315 National Jobs



14.3%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$13.50 - \$16.00 per hour

Experienced Wages:
\$20.00 - \$24.50 per hour



**Short-term On-the-Job
Training Required**

PLUMBERS, PIPEFITTERS, AND STEAMFITTERS

SOC Code: 47-2152

Alternate Titles

Drain Technician
Plumber Gasfitter
Plumbing and Heating Mechanic
Welder
Sprinkler Fitter
Machine Repairman
Journeyman Pipe Fitter
Millwright
Pipe Welder

Career Connections

Military Connections

Plumbers, Pipefitters and Steamfitters are similar to the following military occupational classifications:

Air Force: N/A

Army: 12K

Coast Guard: N/A

Marine Corps: 1171

Navy: 4952, 4999, 6199, HT, UT

Industry Connections

Other industries that employ this occupation include:

Plumbing, Heating, and Air-Conditioning Contractors

Commercial and Institutional Building Construction

Local Government

Plumbers, Pipefitters and Steamfitters assemble, install, and repair pipelines or pipe systems that carry water, steam, air, or other liquids or gases. They may install heating and cooling equipment and mechanical control systems. Tasks Plumbers, Pipefitters and Steamfitters are responsible for include, but are not limited to:

- Plan pipe system layout, installation, or repair, according to specifications.
- Inspect, examine, or test installed systems or pipe lines, using pressure gauge, hydrostatic testing, observation, or other methods.
- Measure, cut, thread, or bend pipe using hand or power tools or machines.
- Study plans and inspect structures to assess needs and plan installation around obstructions.

Education Requirements

Plumbers, Pipefitters and Steamfitters typically have at least a high school diploma or the equivalent plus long-term on-the-job training.

Basic Work Requirements

Plumbers, Pipefitters and Steamfitters are required to:

- Participate in face-to-face discussions with individuals or a team
- Spend time using one's hands to control/handle tools
- Utilize the telephone
- Be in contact with others through face-to-face conversations, by telephone, or otherwise
- Frequently make decisions

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Critical Thinking	Arm-Hand Steadiness
Building and Construction	Active Listening	Control Precision
English Language	Coordination	Finger Dexterity
Mathematics	Time Management	Multi-limb Coordination
Design	Operation Monitoring	Near Vision



Current Employment:
9,296 Regional Jobs
359,542 National Jobs



8.5%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$15.00 - \$18.00 per hour

Experienced Wages:
\$23.50 - \$29.50 per hour



Long-term On-the-Job Training Required

CONSTRUCTION AND BUILDING INSPECTORS

SOC Code: 47-4011

Alternate Titles

Engineering Technician
Engineer
Associate Architect
Plumbing Inspector
Building Code Administrator
Building Mechanical Engineer
Building Official

Career Connections

Military Connections

Construction and Building Inspectors are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: 5501, 6001

Industry Connections

Other industries that employ this occupation include:

Local and State Government
Engineering Services
Architectural Services
Testing Laboratories

Construction and Building Inspectors examine structures using engineering skills to determine structural soundness and compliance with specifications, building codes, and other regulations. Inspections may be general in nature or may be limited to a specific area, such as electrical systems or plumbing. Tasks Construction and Building Inspectors are responsible for include, but are not limited to:

- Issue violations and stop-work orders, conferring with violators to recommend rectifications.
- Inspect highways, buildings, wiring, plumbing, electrical circuits, sewers, or foundations for structural quality, general safety, or conformance to codes.
- Approve plans that meet required specifications.
- Review plans, site layouts or construction methods to ensure compliance to legal and safety requirements.

Education Requirements

Construction and Building Inspectors typically have at least a high school diploma or the equivalent as well as work experience in a related occupation.

Basic Work Requirements

Construction and Building Inspectors are required to:

- Utilize the telephone
- Utilize electronic mail
- Participate in face-to-face discussions with individuals or a team
- Exercise the freedom to make decisions
- Work outdoors, exposed to all weather conditions

Top Competencies

Knowledge	Skills	Abilities
Building and Construction	Active Listening	Oral Expression
Engineering and Technology	Reading Comprehension	Oral Comprehension
English Language	Speaking	Written Comprehension
Customer and Personal Service	Critical Thinking	Problem Sensitivity
Public Safety and Security	Judgment and Decision Making	Near Vision



Current Employment:
3,158 Regional Jobs
90,636 National Jobs



3.7%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$15.00 - \$18.00 per hour

Experienced Wages:
\$22.50 - \$26.50 per hour



Work Experience in a Related Occupation Required



EXTRACTION OCCUPATIONS



Extraction Occupations: Real-time Snap Shot

Occupational profiles follow for six (6) Extraction occupations. Between the two-year period of January 1, 2011 and December 31, 2012, there were a total of 212 online job postings for these occupations in the region. Real-time occupational data examined from these online job postings provides insight into the certifications, technical and specialized skills and hiring needs of employers in the Oil and Natural Gas Industry. Real-time information is included below for the following occupations:

- Derrick Operators, Oil and Gas
- Rotary Drill Operators
- Service Unit Operators, Oil, Gas, and Mining
- Earth Drillers
- Roustabouts, Oil and Gas
- Helpers - Extraction Workers

The chart to the right depicts the companies with the most Extraction job postings in the region during the period of January 1, 2011 through December 31, 2013. As the postings show, there are job opportunities from energy companies and services companies and contractors.

In analyzing these actual job postings, information about the specific skills and certifications sought by employers emerges. For example, the job postings often list specific certifications sought by employers for these positions as well as the technical and foundational skills they look for in successful candidates.



Top Certifications in Demand

- Commercial Driver's License
- Air Brake Certified
- CDL Class B
- Contractor's License
- Hazardous Materials Certification

Top Skills in Demand by Employers

SPECIALIZED AND TECHNICAL SKILLS	FOUNDATIONAL SKILLS
1. Government Regulations	1. Computer Skills
2. Repair	2. Management
3. Technical Training	3. Quality Assurance and Control
4. Legal Compliance	4. Writing
5. Energy Services	5. Communication Skills
6. First Aid	6. Teaching
7. Expense Reports	7. Research
8. Training Programs	8. Problem Solving
9. Strata Studio Pro	9. Project Management
10. Pressure Gauges	10. Supervisory Skills

DERRICK OPERATORS

SOC Code: 47-5011

Alternate Titles

Derrick Hand

Derrick Man

Floor Hand

Derrick Worker

Career Connections

Military Connections

Derrick Operators are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Support Activities for Oil and Gas Operations

Support Activities for Coal Mining

Support Activities for Nonmetallic Minerals (except Fuels) Mining

Derrick Operators rig derrick equipment and operate pumps to circulate mud through drill hole. Tasks Derrick Operators are responsible for include, but are not limited to:

- Inspect derricks, or order their inspection, prior to being raised or lowered.
- Inspect derricks for flaws, and clean and oil derricks in order to maintain proper working conditions.
- Control the viscosity and weight of the drilling fluid.
- Repair pumps, mud tanks, and related equipment.

Education Requirements

Derrick Operators typically have at least a high school diploma or the equivalent plus short-term on-the-job training.

Basic Work Requirements

Derrick Operators are required to:

- Be exposed to contaminants
- Work outdoors, exposed to all weather conditions
- Wear common protective/safety equipment
- Typically work a high number of hours in one week
- Be exposed to distracting/uncomfortable noise levels

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Operation Monitoring	Multi-limb Coordination
Mathematics	Operation and Control	Control Precision
English Language	Critical Thinking	Reaction Time
Education and Training	Repairing	Manual Dexterity
Public Safety and Security	Monitoring	Arm-Hand Steadiness



Current Employment:
865 Regional Jobs
24,813 National Jobs



40.7%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$17.50 - \$20.00 per hour

Experienced Wages:
\$22.00 - \$25.50 per hour



**Short-term On-the-Job
Training Required**

ROTARY DRILL OPERATORS

SOC Code: 47-5012

Alternate Titles

Driller
Tool Pusher
Daylight Driller
Drill Foreman
Drill Operator
Drilling Rig Operator
Motor Man
Oil Rig Driller
Oil Well Driller
Relief Driller

Career Connections

Military Connections

Rotary Operators are similar to the following military occupational classifications:

Air Force: N/A
Army: N/A
Coast Guard: N/A
Marine Corps: N/A
Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Support Activities for Oil and Gas Operations
Support Activities for Coal Mining
Support Activities for Nonmetallic Minerals (except Fuels) Mining

Rotary Operators set up or operate a variety of drills to remove underground oil and gas, or remove core samples for testing during oil and gas exploration. Tasks Rotary Operators are responsible for include, but are not limited to:

- Train crews, and introduce procedures to make drill work more safe and effective.
- Observe pressure gauge and move throttles and levers in order to control the speed of rotary tables, and to regulate pressure of tools at bottoms of boreholes.
- Count sections of drill rod in order to determine depths of boreholes.
- Push levers and brake pedals in order to control gasoline, diesel, electric, or steam draw works that lower and raise drill pipes and casings in and out of wells.

Education Requirements

Rotary Operators typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Rotary Operators are required to:

- Wear common protective/safety equipment
- Typically work a high number of hours in one week
- Participate in face-to-face discussions with individuals or a team
- Work outdoors, exposed to all weather conditions
- Be exposed to distracting/uncomfortable noise levels

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Operation and Control	Control Precision
Mathematics	Operation Monitoring	Problem Sensitivity
Administration and Management	Critical Thinking	Near Vision
Education and Training	Monitoring	Multi-limb Coordination
Personnel and Human Resources	Instructing	Manual Dexterity



Current Employment:
1,271 Regional Jobs
26,061 National Jobs



29.5%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$13.00 - \$15.00 per hour

Experienced Wages:
\$19.00 - \$25.00 per hour



**Moderate-term On-the-Job
Training Required**

SERVICE UNIT OPERATORS

SOC Code: 47-5013

Alternate Titles

Rig Operator
Pulling Unit Operator
Service Rig Operator
Fishing Tool Supervisor
Service Operator
Reverse Unit Operator-
Fisherman
Tool Pusher
Well Servicing Rig Operator
Wireline Operator
Work Over Rig Operator

Career Connections

Military Connections

Service Unit Operators are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Support Activities for Oil and Gas Operations

Support Activities for Coal Mining

Service Unit Operators utilize equipment to increase oil flow from producing wells or to remove stuck pipe, casing, tools, or other obstructions from drilling wells. They may also perform similar services in mining exploration operations. Tasks Service Unit Operators are responsible for include, but are not limited to:

- Observe load variations on strain gauges, mud pumps, and motor pressure indicators; and listen to engines, rotary chains, and other equipment in order to detect faulty operations or unusual well conditions.
- Confer with others to gather information regarding pipe or tool sizes or borehole conditions in wells.
- Drive truck-mounted units to well sites.
- Install pressure-control devices onto wellheads.

Education Requirements

Service Unit Operators typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Service Unit Operators are required to:

- Work outdoors, exposed to all weather conditions
- Wear common protective/safety equipment
- Participate in face-to-face discussions with individuals or a team
- Typically work a high number of hours in one week
- Work with a group or team

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Operation Monitoring	Problem Sensitivity
Customer and Personal Service	Critical Thinking	Control Precision
English Language	Monitoring	Multi-limb Coordination
Public Safety and Security	Operation and Control	Arm-Hand Steadiness
Transportation	Active Listening	Depth Perception



Current Employment:
2,062 Regional Jobs
58,770 National Jobs



33.5%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$12.50 - \$14.50 per hour

Experienced Wages:
\$17.50 - \$25.00 per hour



**Moderate-term On-the-Job
Training Required**

EARTH DRILLERS

SOC Code: 47-5021

Alternate Titles

Driller
Blaster
Blast Hole Driller
Drill Operator
Well Driller
Blasting Production Technician
Hard Rock Drill Operator
Highwall Drill Operator
Overburden Drill Operator
Rock Drill Operator

Career Connections

Military Connections

Earth Drillers are similar to the following military occupational classifications:

Air Force: N/A
Army: N/A
Coast Guard: N/A
Marine Corps: N/A
Navy: 5707

Industry Connections

Other industries that employ this occupation include:

Support Activities for Oil and Gas Operations
Bituminous Coal Underground Mining
Water and Sewer Line and Related Structures Construction

Earth Drillers operate a variety of drills such as rotary, churn, and pneumatic to tap sub-surface water and salt deposits, to remove core samples during mineral exploration or soil testing, and to facilitate the use of explosives in mining or construction. They may use explosives and includes horizontal and earth boring machine operators. Tasks Earth Drillers are responsible for include, but are not limited to:

- Regulate air pressure, rotary speed, and downward pressure, according to the type of rock or concrete being drilled.
- Verify depths and alignments of boring positions.
- Monitor drilling operations, checking gauges and listening to equipment to determine the need to adjust drilling or alter equipment.
- Start, stop, and control drilling speed of machines and insertion of casings into holes.

Education Requirements

Earth Drillers typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Earth Drillers are required to:

- Typically work a high number of hours in one week
- Exercise the freedom to make decisions
- Work outdoors, exposed to all weather conditions
- Spend time using one's hands to control/handle tools
- Work in a structured role, rather than individually determine tasks, priorities, and goals

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Operation Monitoring	Control Precision
Public Safety and Security	Operation and Control	Multi-limb Coordination
Administration and Management	Monitoring	Manual Dexterity
Mathematics	Equipment Maintenance	Reaction Time
Building and Construction	Quality Control Analysis	Arm-Hand Steadiness



Current Employment:
887 Regional Jobs
18,809 National Jobs



12.2%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$12.50 - \$14.00 per hour

Experienced Wages:
\$17.00 - \$20.50 per hour



**Moderate-term On-the-Job
Training Required**

ROUSTABOUTS

SOC Code: 47-5071

Alternate Titles

Roustabout Pusher

Roustabout Hand

Floor Hand

Oil Field Roustabout

Rig Hand

Roustabout Crew Leader

Roustabout Crew Pusher

Production Roustabout

Galley Hand

Career Connections

Military Connections

Roustabouts are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Support Activities for Oil and Gas Operations

Support Activities for Coal Mining

Roustabouts assemble or repair oil field equipment using hand and power tools. They also perform other tasks as needed. Tasks Roustabouts are responsible for include, but are not limited to:

- Keep pipe deck and main deck areas clean and tidy.
- Unscrew or tighten pipes, casing, tubing, and pump rods, using hand and power wrenches and tongs.
- Walk flow lines to locate leaks, using electronic detectors and by making visual inspections, and repair the leaks.
- Move pipes to and from trucks, using truck winches and motorized lifts, or by hand.

Education Requirements

Roustabouts typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Roustabouts are required to:

- Work outdoors, exposed to all weather conditions
- Wear common protective/safety equipment
- Participate in face-to-face discussions with individuals or a team
- Spend time using one's hands to control/handle tools
- Typically work a high number of hours in one week

Top Competencies

Knowledge	Skills	Abilities
Public Safety and Security	Monitoring	Multi-limb Coordination
Mechanical	Critical Thinking	Manual Dexterity
Mathematics	Troubleshooting	Problem Sensitivity
English Language	Quality Control Analysis	Near Vision
Building and Construction	Operation Monitoring	Control Precision



Current Employment:

2,191 Regional Jobs
64,200 National Jobs



33.3%

Projected Regional Growth
(2013-2018)

Entry Wages:

\$10.00 - \$11.50 per hour

Experienced Wages:

\$14.00 - \$19.00 per hour



**Moderate-term On-the-Job
Training Required**

HELPERS – EXTRACTION WORKERS

SOC Code: 47-5081

Alternate Titles

Driller Helper
Coal Miner
Maintainer
Blasting Helper
Continuous Miner Operator Helper
Longwall Machine Operator Helper
Mining Technician
Salt Miner
Underground Miner

Career Connections

Military Connections

Extraction Worker Helpers are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Support Activities for Oil and Gas Operations
Bituminous Coal
Underground Mining
Bituminous Coal and Lignite
Surface Mining

Extraction Worker Helpers help extraction craft workers, such as earth drillers, blasters and explosives workers, derrick operators, and mining machine operators, by performing duties requiring less skill. They perform duties that include supplying equipment or cleaning work area. Tasks Extraction Worker Helpers are responsible for include, but are not limited to:

- Repair and maintain automotive and drilling equipment, using hand tools.
- Observe and monitor equipment operation during the extraction process in order to detect any problems.
- Drive moving equipment in order to transport materials and parts to excavation sites.
- Clean up work areas and remove debris after extraction activities are complete.

Education Requirements

Extraction Worker Helpers typically have at least a high school diploma or the equivalent plus short-term on-the-job training.

Basic Work Requirements

Extraction Worker Helpers are required to:

- Wear common protective/safety equipment
- Spend time using one's hands to control/handle tools
- Be exposed to hazardous equipment
- Participate in face-to-face discussions with individuals or a team
- Be exposed to distracting/uncomfortable noise levels

Top Competencies

Knowledge	Skills	Abilities
Law and Government	Operation Monitoring	Multi-limb Coordination
Public Safety and Security	Monitoring	Far Vision
Mechanical	Repairing	Near Vision
Education and Training	Equipment Maintenance	Manual Dexterity
Production and Processing	Operation and Control	Problem Sensitivity



Current Employment:
1,972 Regional Jobs
28,391 National Jobs



14.8%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$11.00 - \$12.00 per hour

Experienced Wages:
\$14.00 - \$18.50 per hour



**Short-term On-the-Job
Training Required**



INSTALLATION, MAINTENANCE AND REPAIR OCCUPATIONS

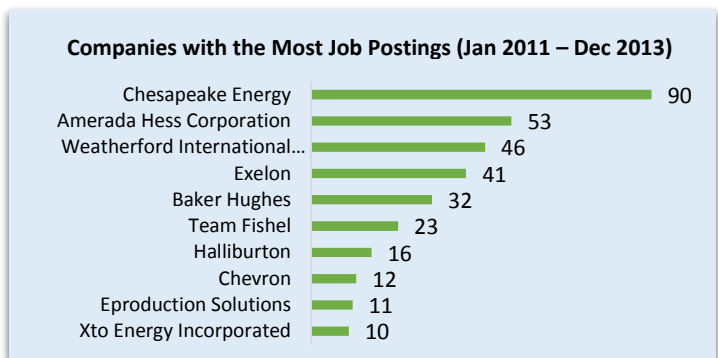


Installation, Maintenance and Repair Occupations: Real-time Snap Shot

Occupational profiles follow for six (6) Installation, Maintenance and Repair occupations. Between the two-year period of January 1, 2011 and December 31, 2012, there were 442 online job postings for these occupations in the region. Real-time occupational data examined from the online job postings provides insight into the certifications, technical and specialized skills and hiring needs of employers in the Oil and Natural Gas Industry. Real-time information is included below for the following occupations:

- Mobile Heavy Equipment Mechanics
- Industrial Machinery Mechanics
- Electrical Power-Line Installers and Repairers
- Telecommunications Line Installers
- Maintenance and Repair Workers, General
- Helpers of Installation, Maintenance and Repair Workers

The chart to the right depicts the companies with the most Installation, Maintenance and Repair job postings in the region during the period of January 1, 2011 through December 31, 2013. As the postings show, there are job opportunities from energy companies and services companies and contractors.



In analyzing these actual job postings, information about the specific skills and certifications sought by employers emerges. For example, the job postings often list specific certifications sought by employers for these positions as well as the technical and foundational skills they look for in successful candidates.

Top Certifications in Demand

- American Society of Mechanical Engineers (ASME) Certified
- CDL Class A
- CDL Class C
- Project Management Certification (e.g. PMP)
- Electrician Certification

Top Skills in Demand by Employers

SPECIALIZED AND TECHNICAL SKILLS	FOUNDATIONAL SKILLS
1. Electrical Repair	1. Communication Skills
2. Inspection	2. Troubleshooting
3. Pollution Reduction, Removal, and Remediation	3. Preventative Maintenance
4. Scheduling	4. Computer Skills
5. Welding	5. Planning
6. Schematic Diagrams	6. Leadership
7. Power Tools	7. Microsoft Office
8. Blueprints	8. Project Management
9. Hand Tools	9. Organizational Skills
10. SAP	10. Quality Assurance and Control

MOBILE HEAVY EQUIPMENT MECHANICS

SOC Code: 49-3042

Alternate Titles

Field Service Technician

Field Mechanic

Equipment Technician

Construction Equipment
Mechanic

Heavy Equipment Technician

Diesel Mechanic

Career Connections

Military Connections

Mobile Heavy Equipment Mechanics are similar to the following military occupational classifications:

Air Force: 2T312A, 2T312C, 2T332A, 2T351, 2T352A, 2T352C

Army: 13B, 13D, 13F, 13M, 13P, 13R, 19K, 91A, 91H, 91L, 91M, 91P, 91S

Coast Guard: 711, 713

Marine Corps: 6072

Navy: 4130, 4133, 4541, 5899, 7603, 7607, 7618, ABE, CM, MM-ELT, MME, MMW, SB

Industry Connections

Other industries that employ this occupation include:

Bituminous Coal

Underground Mining

Industrial Machinery and
Equipment Wholesalers

Local Government

Mobile Heavy Equipment Mechanics 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. Tasks Mobile Heavy Equipment Mechanics are responsible for include, but are not limited to:

- Repair and replace damaged or worn parts.
- Dismantle and reassemble heavy equipment using hoists and hand tools.
- Operate and inspect machines or heavy equipment to diagnose defects.
- Test mechanical products and equipment after repair or assembly to ensure proper performance and compliance with manufacturers' specifications.

Education Requirements

Mobile Heavy Equipment Mechanics typically have at least a high school diploma or the equivalent plus long-term on-the-job training.

Basic Work Requirements

Mobile Heavy Equipment Mechanics are required to:

- Spend time using one's hands to control/handle tools
- Potentially be exposed to contaminants
- Wear common protective/safety equipment
- Work in a cramped space or awkward positions
- Potentially be exposed to hazardous equipment

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Troubleshooting	Control Precision
Customer and Personal Service	Repairing	Manual Dexterity
Computers and Electronics	Equipment Maintenance	Multi-limb Coordination
Engineering and Technology	Operation Monitoring	Finger Dexterity
Mathematics	Quality Control Analysis	Near Vision



Current Employment:
3,853 Regional Jobs
119,396 National Jobs



10.1%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$14.00 - \$16.50 per hour

Experienced Wages:
\$20.50 - \$24.50 per hour



**Long-term On-the-Job
Training Required**

INDUSTRIAL MACHINERY MECHANICS

SOC Code: 49-9041

Alternate Titles

Maintenance Mechanic
Maintenance Technician
Master Mechanic
Machine Adjuster
Overhauler
Industrial Electrician
Industrial Mechanic

Career Connections

Military Connections

Industrial Machinery Mechanics are similar to the following military occupational classifications:

Air Force: 3E412, 3E432, 3E452

Army: 91J

Coast Guard: N/A

Marine Corps: N/A

Navy: 4140, 4143, 4231, 4233, 4234, 4253, 4283, 4291, 4308, 4314, 4324, 4355, 4366, 4509, 7022, 7601, 7606, 7612, 7614, 7616, 7617, 9594, ABE, MM-ELT, MME, MMW

Industry Connections

Other industries that employ this occupation include:

Iron and Steel Mills
Industrial Machinery and Equipment Wholesalers
Plastics Product Manufacturing

Industrial Machinery Mechanics repair, install, adjust, or maintain industrial production and processing machinery or refinery and pipeline distribution systems. Tasks Industrial Machinery Mechanics are responsible for include, but are not limited to:

- Disassemble machinery or equipment to remove parts and make repairs.
- Repair or replace broken or malfunctioning components of machinery or equipment.
- Repair or maintain the operating condition of industrial production or processing machinery or equipment.
- Examine parts for defects, such as breakage or excessive wear.

Education Requirements

Industrial Machinery Mechanics typically have at least a high school diploma or the equivalent plus long-term on-the-job training.

Basic Work Requirements

Industrial Machinery Mechanics are required to:

- Wear common protective/safety equipment
- Participate in face-to-face discussions with individuals or a team
- Potentially be exposed to hazardous equipment
- Typically work a high number of hours in one week
- Potentially be exposed to contaminants

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Repairing	Reaction Time
Mathematics	Equipment Maintenance	Control Precision
Engineering and Technology	Operation Monitoring	Manual Dexterity
Design	Troubleshooting	Finger Dexterity
English Language	Quality Control Analysis	Near Vision



Current Employment:
11,797 Regional Jobs
319,541 National Jobs



7.8%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$14.50 - \$17.50 per hour

Experienced Wages:
\$21.00 - \$25.50 per hour



**Long-term On-the-Job
Training Required**

ELECTRICAL POWER-LINE INSTALLERS AND REPAIRERS

SOC Code: 49-9051

Alternate Titles

A Class Lineman
Apprentice Lineman Third Step
Class A Lineman
Electric Lineman
Electrical Lineworker
Journeyman Lineman
Lineman
Lineworker
Power Lineman

Career Connections

Military Connections

Electrical Power-line Installers and Repairers are similar to the following military occupational classifications:

Air Force: 3D117, 3D137, 3D157, 3D177

Army: 12Q

Coast Guard: N/A

Marine Corps: N/A

Navy: 14RO, 5644, 5699, CE

Industry Connections

Other industries that employ this occupation include:

Electric Power Distribution
Fossil Fuel Electric Power Distribution
Power and Communication Line Construction
Local Government

Electrical Power-line Installers and Repairers install or repair cables or wires used in electrical power or distribution systems. They may erect poles and light or heavy duty transmission towers. Tasks Electrical Power-line Installers and Repairers are responsible for include, but are not limited to:

- Adhere to safety practices and procedures, such as checking equipment regularly and erecting barriers.
- Test conductors to identify corresponding conductors and to prevent incorrect connections.
- Open switches or attach grounding devices to remove electrical hazards from disturbed or fallen lines or to facilitate repairs.
- Climb poles or use truck-mounted buckets to access equipment.

Education Requirements

Electrical Power-line Installers and Repairers typically have at least a high school diploma or the equivalent plus long-term on-the-job training.

Basic Work Requirements

Electrical Power-line Installers and Repairers are required to:

- Participate in face-to-face discussions with individuals or a team
- Wear common protective/safety equipment
- Work outdoors, exposed to all weather conditions
- Frequently make decisions
- Be responsible for others' health and safety

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Active Listening	Near Vision
Customer and Personal Service	Monitoring	Problem Sensitivity
Physics	Operation Monitoring	Multi-limb Coordination
Mathematics	Critical Thinking	Arm-Hand Steadiness
English Language	Troubleshooting	Oral Comprehension



Current Employment:
3,225 Regional Jobs
108,743 National Jobs



1.4%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$18.50 - \$23.00 per hour

Experienced Wages:
\$28.50 - \$33.00 per hour



**Long-term On-the-Job
Training Required**

TELECOMMUNICATIONS LINE INSTALLERS

SOC Code: 49-9052

Alternate Titles

Combination Technician
Service Technician
Installation and Repair Technician (I & R Technician)
Cable Splicer
Cable Technician
Installer
Outside Plant Technician
Lineman

Career Connections

Military Connections

Telecommunications Line Installers are similar to the following military occupational classifications:

Air Force: N/A

Army: 25L, 25U, 31L, 31U, 36C

Coast Guard: 281

Marine Corps: 0600, 0612, 0613

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Wired Telecommunications Carriers

Electrical Contractors and Other Wiring Installation Contractors

Power and Communication Line Construction

Telecommunications Line Installers install and repair telecommunications cable, including fiber optics. Tasks Telecommunications Line Installers are responsible for include, but are not limited to:

- Travel to customers' premises to install, maintain, or repair audio and visual electronic reception equipment or accessories.
- Inspect or test lines or cables, recording and analyzing test results, to assess transmission characteristics and locate faults or malfunctions.
- Splice cables, using hand tools, epoxy, or mechanical equipment.
- Measure signal strength at utility poles, using electronic test equipment.

Education Requirements

Telecommunications Line Installers typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Telecommunications Line Installers are required to:

- Participate in face-to-face discussions with individuals or a team
- Work outdoors, exposed to all weather conditions
- Work in an enclosed vehicle or equipment
- Wear common protective/safety equipment
- Spend time using one's hands to control/handle tools

Top Competencies

Knowledge	Skills	Abilities
Telecommunications	Troubleshooting	Oral Comprehension
Customer and Personal Service	Operation Monitoring	Oral Expression
Computers and Electronics	Active Listening	Extent Flexibility
English Language	Operation and Control	Near Vision
Mathematics	Critical Thinking	Multi-limb Coordination



Current Employment:

3,523 Regional Jobs
149,224 National Jobs



-6.2%

Projected Regional Growth
(2013-2018)

Entry Wages:

\$13.00 - \$18.50 per hour

Experienced Wages:

\$26.00 - \$31.00 per hour



**Long-term On-the-Job
Training Required**

GENERAL MAINTENANCE AND REPAIR WORKERS

SOC Code: 49-9071

Alternate Titles

Maintenance Technician
Maintenance Mechanic
Maintenance Electrician
Process Technician
Equipment Engineering Technician
Building Mechanic
Facilities Technician

Career Connections

Military Connections

General Maintenance and Repair Workers are similar to the following military occupational classifications:

Air Force: 2W011, 2W031, 2W051, 2W071, 2W111, 2W131, 2W151, 2W171, 2W211, 2W231, 2W251, 2W271

Army: 91K

Coast Guard: N/A

Marine Corps: 0411, 6531, 6541

Navy: 41E9, 41M9, 4299, 7399, ABE, GSE, GSM, MM, PR

Industry Connections

Other industries that employ this occupation include:

Local Government
Lessors of Residential Buildings and Dwellings
Iron and Steel Mills

General Maintenance and Repair Workers 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. Tasks General Maintenance and Repair Workers are responsible for include, but are not limited to:

- Use tools ranging from common hand and power tools, to precision measuring instruments and electrical and electronic testing devices.
- Perform routine maintenance so machines continue to run smoothly or building systems operate efficiently.
- Inspect, operate, or test machinery or equipment to diagnose machine malfunctions.
- Diagnose mechanical problems and determine how to correct them.

Education Requirements

General Maintenance and Repair Workers typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

General Maintenance and Repair Workers are required to:

- Spend time using one's hands to control/handle tools
- Wear common protective/safety equipment
- Be in contact with others through face-to-face conversations, by telephone, or otherwise
- Spend time standing
- Exercise the freedom to make decisions

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Repairing	Information Ordering
Customer and Personal Service	Equipment Maintenance	Manual Dexterity
Building and Construction	Troubleshooting	Arm-Hand Steadiness
Public Safety and Security	Critical Thinking	Near Vision
English Language	Reading Comprehension	Problem Sensitivity



Current Employment:
38,794 Regional Jobs
1,254,758 National Jobs



0.5%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$9.50 - \$12.00 per hour

Experienced Wages:
\$16.00 - \$20.50 per hour



**Moderate-term On-the-Job
Training Required**

HELPERS – INSTALLATION, MAINTENANCE AND REPAIR WORKERS

SOC Code: 49-9098

Alternate Titles

Building Equipment Operator
Helper
Maintenance Helper
Trades Helper
General Maintenance
Mechanic
Well Tender
Facilities Maintenance
Technician
Mechanic Helper

Career Connections

Military Connections

Installation, Maintenance and Repair Worker Helpers are similar to the following military occupational classifications:

Air Force: N/A

Army: 91F

Coast Guard: N/A

Marine Corps: N/A

Navy: FC, GM, MM-ELT,
MME, MMW

Industry Connections

Other industries that employ this occupation include:

New Car Dealers

Plumbing, Heating, and Air-
Conditioning Contractors

General Automotive Repair

Local Government

Installation, Maintenance and Repair Worker Helpers assist with maintenance, parts replacement, and repair of vehicles, machinery, and equipment. They furnish tools, materials, and supplies to other workers; clean work areas, machines, and tools; and hold materials or tools for other workers. Tasks Installation, Maintenance and Repair Worker Helpers are responsible for include, but are not limited to:

- Transfer equipment and supplies to work stations.
- Disassemble broken or defective equipment to facilitate repair and reassemble equipment.
- Install or replace machinery, equipment, parts and instruments, using hand or power tools.
- Examine and test machinery, equipment, components, and parts for defects to ensure proper functioning.

Education Requirements

Installation, Maintenance and Repair Worker Helpers typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Installation, Maintenance and Repair Worker Helpers are required to:

- Participate in face-to-face discussions with individuals or team members
- Spend time using one's hands to control/handle tools
- Utilize the telephone
- Be in contact with others through face-to-face conversations, by telephone, or otherwise
- Spend time standing

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Operation Monitoring	Control Precision
English Language	Active Listening	Manual Dexterity
Mathematics	Equipment Maintenance	Near Vision
Customer and Personal Service	Critical Thinking	Arm-Hand Steadiness
Building and Construction	Repairing	Multi-limb Coordination



Current Employment:
3,199 Regional Jobs
127,629 National Jobs



5.3%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$8.00 - \$9.00 per hour
Experienced Wages:
\$11.00 - \$15.00 per hour



**Moderate-term On-the-Job
Training Required**



PRODUCTION AND TRANSPORTATION OCCUPATIONS



Production Occupations: Real-time Snap Shot

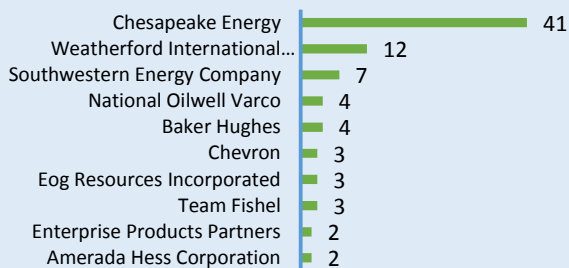
Occupational profiles follow for five (5) Production occupations. Between the two-year period of January 1, 2011 and December 31, 2012, there were a total of 99 online job postings for these occupations in the region. Real-time occupational data examined from these online job postings provides insight into the certifications, technical and specialized skills and hiring needs of employers in the Oil and Natural Gas Industry. Real-time information is included below for the following occupations:

- Machinists
- Welders, Cutters, Solderers, and Brazers
- Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic
- Gas Compressor and Gas Pumping Station Operator
- Wellhead Pumpers

The chart to the right depicts the companies with the most Production job postings in the region during the period of January 1, 2011 through December 31, 2013. As the postings show, there are job opportunities from energy companies and services companies and contractors.

In analyzing these actual job postings, information about the specific skills and certifications sought by employers emerges. For example, the job postings often list specific certifications sought by employers for these positions as well as the technical and foundational skills they look for in successful candidates.

Companies with the Most Job Postings (Jan 2011 – Dec 2013)



Top Certifications in Demand

- Commercial Driver's License
- Hazardous Materials Certification
- Certified Overhead Crane Operator
- Basic Safety Training (BST)
- Air Brake Certified

Top Skills in Demand by Employers

SPECIALIZED AND TECHNICAL SKILLS	FOUNDATIONAL SKILLS
1. Natural Gas: Pollution Reduction, Removal, and Remediation	1. Microsoft Office
2. Inspection	2. Computer Skills
3. Information Technologies and Software	3. Troubleshooting
4. Maintenance Coordination	4. Team Work
5. Repair	5. Leadership
6. Engineering Support	6. Microsoft Excel
7. Surveys	7. Research
8. Mathematics	8. Communication Skills
9. Hand Tools	9. Organizational Skills
10. Operational Qualification (OQ)	10. Microsoft Windows

MACHINISTS

SOC Code: 51-4041

Alternate Titles

Gear Machinist
Journeyman Machinist
Machine Operator
Machine Repair Person
Maintenance Machinist
Maintenance Specialist
Production Machinist
Set-Up Machinist
Tool Room Machinist

Career Connections

Military Connections

Machinists are similar to the following military occupational classifications:

Air Force: 2A711, 2A731, 2A750, 2A771

Army: 91E

Coast Guard: N/A

Marine Corps: 2161

Navy: 4402, 4499, 4542, MR

Industry Connections

Other industries that employ this occupation include:

Machine Shops
Special Die and Tool, Die Set, Jig and Fixture Manufacturing
Precision Turned Product Manufacturing
Railroad Rolling Stock Manufacturing

Machinists set up and operate a variety of machine tools to produce precision parts and instruments. They may 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. Tasks Machinists are responsible for include, but are not limited to:

- Calculate dimensions or tolerances, using instruments such as micrometers or vernier calipers.
- Machine parts to specifications, using machine tools, such as lathes, milling machines, shapers, or grinders.
- Set up, adjust, or operate basic or specialized machine tools used to perform precision machining operations.
- Align and secure holding fixtures, cutting tools, attachments, accessories, or materials onto machines.

Education Requirements

Machinists typically have at least a high school diploma or the equivalent plus long-term on-the-job training.

Basic Work Requirements

Machinists are required to:

- Wear common protective/safety equipment
- Participate in face-to-face discussions with individuals or team members
- Be exact and/or highly accurate
- Potentially be exposed to hazardous equipment
- Spend time using one's hands to control/handle tools

Top Competencies

Knowledge	Skills	Abilities
Mathematics	Operation Monitoring	Manual Dexterity
Mechanical	Operation and Control	Arm-Hand Steadiness
Production and Processing	Critical Thinking	Control Precision
English Language	Monitoring	Finger Dexterity
Design	Reading Comprehension	Near Vision



Current Employment:
16,564 Regional Jobs
392,763 National Jobs



0.0%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$11.50 - \$14.50 per hour

Experienced Wages:
\$17.50 - \$21.00 per hour



**Long-term On-the-Job
Training Required**

WELDERS, CUTTERS, SOLDERERS, AND BRAZERS

SOC Code: 51-4121

Alternate Titles

Mig Welder
Sub Arc Operator
Welder-Fitter
Wirer
Assembly Line Brazer
Connector
Electronic Technician
Production Technician
Electrical Assembler

Career Connections

Military Connections

Welders, Cutters, Solderers and Brazers are similar to the following military occupational classifications:

Air Force: N/A

Army: 44A, 44B, 44C, 91W

Coast Guard: N/A

Marine Corps: 1316, 6043

Navy: 3351, 4955, 6015, 7222

Industry Connections

Other industries that employ this occupation include:

Railroad Rolling Stock Manufacturing

Machine Shops

Sheet Metal Working Manufacturing

Fabricated Structural Metal Manufacturing

Welders, Cutters, Solderers and Brazers 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. Tasks Welders, Cutters, Solderers and Brazers are responsible for include, but are not limited to:

- Weld components in flat, vertical, or overhead positions.
- Lay out, position, align, and secure parts and assemblies prior to assembly, using straightedges, combination squares, calipers, and rulers.
- Melt and apply solder along adjoining edges of workpieces to solder joints, using soldering irons, gas torches, or electric-ultrasonic equipment.
- Heat soldering irons to specified temperatures for soldering, using gas flames or electric current.

Education Requirements

Welders, Cutters, Solderers and Brazers typically have a post-secondary non-degree award such as an industry certification.

Basic Work Requirements

Welders, Cutters, Solderers and Brazers are required to:

- Be exact and/or highly accurate
- Participate in face-to-face discussions with individuals or a team
- Spend time using one's hands to control/handle tools
- Wear common protective/safety equipment
- Work with a group or team

Top Competencies

Knowledge	Skills	Abilities
Production and Processing	Critical Thinking	Arm-Hand Steadiness
Mechanical	Monitoring	Near Vision
English Language	Active Listening	Manual Dexterity
Administration and Management	Operation Monitoring	Problem Sensitivity
Design	Quality Control Analysis	Control Precision



Current Employment:
12,764 Regional Jobs
339,179 National Jobs



3.1%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$11.50 - \$14.00 per hour

Experienced Wages:
\$16.50 - \$19.50



**Post-secondary Non-Degree
Award Required**

PLATING AND COATING MACHINE SETTERS, OPERATORS, AND TENDERS, METAL AND PLASTIC

SOC Code: 51-4193

Alternate Titles

Plater
Line Operator
Coater Operator
Machine Operator
Anodizer
Anodizing Line Operator
Chrome Plater
Coater Associate
Electro Plater
Hard Chrome Plater

Career Connections

Military Connections

Plating and Coating Machine Setters, Operators and Tenders are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Electroplating, Plating, Polishing, Anodizing, and Coloring

Metal Coating, Engraving, and Allied Services to Manufacturers

Metal Heat Treating

Printed Circuit Assembly Manufacturing

Plating and Coating 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. Tasks Plating and Coating Machine Setters, Operators and Tenders are responsible for include, but are not limited to:

- Inspect coated or plated areas for defects such as air bubbles or uneven coverage.
- Immerse objects to be coated or plated into cleaning solutions, or spray objects with conductive solutions to prepare them for plating.
- Immerse work pieces in coating solutions or liquid metal or plastic for specified times.
- 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.

Education Requirements

Plating and Coating Machine Setters, Operators and Tenders typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Plating and Coating Machine Setters, Operators and Tenders are required to:

- Wear common protective/safety equipment
- Potentially be exposed to contaminants
- Spend time standing
- Be exposed to distracting/ uncomfortable noise levels
- Spend time using one's hands to control/handle tools

Top Competencies

Knowledge	Skills	Abilities
Production and Processing	Operation Monitoring	Oral Comprehension
Public Safety and Security	Monitoring	Near Vision
Mathematics	Speaking	Manual Dexterity
Chemistry	Critical Thinking	Multi-limb Coordination
Administration and Management	Judgment and Decision Making	Control Precision



Current Employment:
1,559 Regional Jobs
33,375 National Jobs



-1.8%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$10.50 - \$12.50 per hour

Experienced Wages:
\$15.50 - \$18.50 per hour



**Moderate-term On-the-Job
Training Required**

GAS COMPRESSOR AND GAS PUMPING STATION OPERATOR

SOC Code: 53-7071

Alternate Titles

Plant Operator
Compressor Operator
Compressor Station Operator
Field Operator
Filler
Liquefied Natural Gas Plant Operator (LNG Plant Operator)
Pipeline Technician
Production Technician
Pipeline Systems Operator
Terminal Operator

Career Connections

Military Connections

Gas Compressor and Gas Pumping Station Operator are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: MME, MMW

Industry Connections

Other industries that employ this occupation include:

Other Chemical and Allied Product Wholesalers

Gas Compressor and Gas Pumping Station Operators oversee steam, gas, electric motor, or internal combustion engine driven compressors. They transmit, compress, or recover gases, such as butane, nitrogen, hydrogen, and natural gas. Tasks Gas Compressor and Gas Pumping Station Operator are responsible for include, but are not limited to:

- Monitor meters and pressure gauges to determine consumption rates, temperatures, and pressures.
- Adjust valves and equipment to obtain specified performance.
- Read gas meters, and maintain records of the amounts of gas received and dispensed from holders.
- Operate power-driven pumps that transfer liquids, semi-liquids, gases, or powdered materials.

Education Requirements

Gas Compressor and Gas Pumping Station Operator typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Gas Compressor and Gas Pumping Station Operator are required to:

- Wear common protective/safety equipment
- Work outdoors, exposed to all weather conditions
- Be exposed to distracting/uncomfortable noise levels
- Work indoors, not in environmentally controlled conditions
- Potentially be exposed to hazardous conditions

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Operation Monitoring	Problem Sensitivity
Mathematics	Operation and Control	Arm-Hand Steadiness
Public Safety and Security	Critical Thinking	Manual Dexterity
Production and Processing	Active Listening	Finger Dexterity
Physics	Equipment Maintenance	Multi-limb Coordination



Current Employment:
686 Regional Jobs
5,223 National Jobs



3.4%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$18.50 - \$22.00 per hour

Experienced Wages:
\$24.50 - \$26.50 per hour



**Moderate-term On-the-Job
Training Required**

WELLHEAD PUMPERS

SOC Code: 53-7073

Alternate Titles

Pumper
Lease Operator
Well Tender
Operations Technician
Wellhead Pumper
Oilfield Plant and Field Operator
Production Operator
Multi-Skilled Operator
Well Head Pumper
Gauger

Career Connections

Military Connections

Wellhead Pumpers are similar to the following military occupational classifications:

Air Force: N/A

Army: N/A

Coast Guard: N/A

Marine Corps: N/A

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

Support Activities for Oil and Gas Operations

Support Activities for Coal Mining

Wellhead Pumpers operate power pumps and auxiliary equipment to produce flow of oil or gas from wells in oil field. Tasks Wellhead Pumpers are responsible for include, but are not limited to:

- Monitor control panels during pumping operations in order to ensure that materials are being pumped at the correct pressure, density, rate, and concentration.
- Operate engines and pumps in order to shut off wells according to production schedules, and to switch flow of oil into storage tanks.
- Perform routine maintenance on vehicles and equipment.
- Repair gas and oil meters and gauges.

Education Requirements

Wellhead Pumpers typically have at least a high school diploma or the equivalent plus moderate-term on-the-job training.

Basic Work Requirements

Wellhead Pumpers are required to:

- Work in an enclosed vehicle or equipment
- Work outdoors, exposed to all weather conditions
- Potentially be exposed to contaminants
- Participate in face-to-face discussions with individuals or a team
- Utilize the telephone

Top Competencies

Knowledge	Skills	Abilities
Mechanical	Operation Monitoring	Problem Sensitivity
Mathematics	Operation and Control	Control Precision
Production and Processing	Repairing	Multi-limb Coordination
Public Safety and Security	Monitoring	Near Vision
English Language	Critical Thinking	Reaction Time



Current Employment:

1,964 Regional Jobs
16,146 National Jobs



15.9%

Projected Regional Growth
(2013-2018)

Entry Wages:

\$11.50 - \$14.00 per hour

Experienced Wages:

\$17.00 - \$20.50 per hour



**Moderate-term On-the-Job
Training Required**



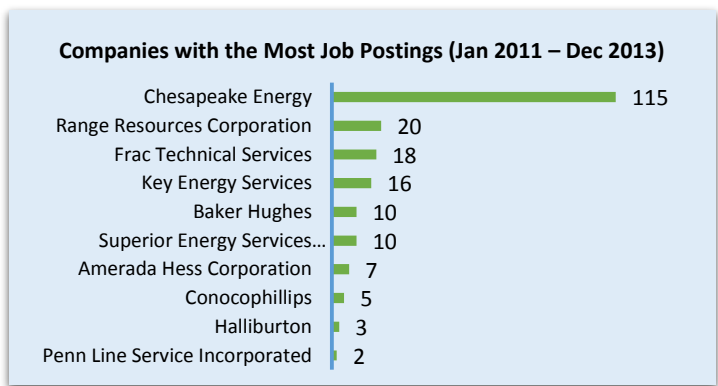
Transportation Occupations: Real-time Snap Shot

Occupational profiles follow for two (2) Transportation occupations. Between the two-year period of January 1, 2011 and December 31, 2012, there were a total of 219 online job postings for these occupations in the region. Real-time occupational data examined from these online job postings provides insight into the certifications, technical and specialized skills and hiring needs of employers in the Oil and Natural Gas Industry. Real-time information is included below for the following occupations:

- Heavy-Truck and Tractor-Trailer Drivers
- Industrial Truck and Tractor Operators

The chart to the right depicts the companies with the most Transportation job postings in the region during the period of January 1, 2011 through December 31, 2013. As the postings show, there are job opportunities from energy companies and services companies and contractors.

In analyzing these actual job postings, information about the specific skills and certifications sought by employers emerges. For example, the job postings often list specific certifications sought by employers for these positions as well as the technical and foundational skills they look for in successful candidates.



Top Certifications in Demand

- CDL Class A
- Commercial Driver's License
- Hazardous Materials Certification

Top Skills in Demand by Employers

SPECIALIZED AND TECHNICAL SKILLS	FOUNDATIONAL SKILLS
1. Repair: Automotive	1. Troubleshooting
2. Hand Tools	2. Self-Starter
3. Energy Services	3. Communication Skills
4. Inspection	4. English
5. Forklift Operation	5. Problem Solving
6. Information Technologies and Software	6. Computer Skills
7. Equipment Repair	7. Writing
8. Equipment Inspection	8. Positive Disposition
9. Electrical Construction	9. Organizational Skills
10. Fuel Filter and Oil Replacement	10. Customer Service

HEAVY-TRUCK AND TRACTOR-TRAILER DRIVERS

SOC Code: 53-3032

Alternate Titles

Truck Driver
Over the Road Driver (OTR Driver)
Line Haul Driver
Delivery Driver
Owner Operator
Road Driver
Semi Truck Driver
City Driver
Feeder Driver

Career Connections

Military Connections

Heavy-Truck and Tractor-Trailer Drivers are similar to the following military occupational classifications:

Air Force: 2T111, 2T131, 2T151

Army: 11B, 11C, 12C, 13B, 13M, 14T, 19D, 19K, 88M

Coast Guard: N/A

Marine Corps: 3531, 3534

Navy: N/A

Industry Connections

Other industries that employ this occupation include:

General Freight Trucking
Specialized Freight Trucking

Heavy-Truck and Tractor-Trailer Drivers operate a tractor-trailer combination or a truck with a capacity of at least 26,000 pounds Gross Vehicle Weight (GVW). They may be required to unload truck and the occupations requires a commercial drivers' license. Tasks Heavy-Truck and Tractor-Trailer Drivers are responsible for include, but are not limited to:

- Check vehicles to ensure that mechanical, safety, and emergency equipment is in good working order.
- Maneuver trucks into loading or unloading positions, following signals from loading crew and checking that vehicle and loading equipment are properly positioned.
- Collect delivery instructions from appropriate sources, verifying instructions and routes.
- Maintain logs of working hours, vehicle service, or repair status, following state and federal regulations.

Education Requirements

Heavy-Truck and Tractor-Trailer Drivers typically have at least a high school diploma or the equivalent plus short-term on-the-job training.

Basic Work Requirements

Heavy-Truck and Tractor-Trailer Drivers are required to:

- Work in an enclosed vehicle or equipment
- Work outdoors, exposed to all weather conditions
- Utilize the telephone
- Spend time using one's hands to control/handle tools
- Typically work a high number of hours in one week

Top Competencies

Knowledge	Skills	Abilities
Transportation	Operation and Control	Control Precision
Public Safety and Security	Operation Monitoring	Far Vision
Mechanical	Time Management	Multi-limb Coordination
Customer and Personal Service	Troubleshooting	Response Orientation
Administration and Management	Monitoring	Depth Perception



Current Employment:
49,933 Regional Jobs
1,597,377 National Jobs



7.2%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$12.00 - \$15.00 per hour

Experienced Wages:
\$18.00 - \$22.00 per hour



**Short-term On-the-Job
Training Required**

INDUSTRIAL TRUCK AND TRACTOR OPERATORS

SOC Code: 53-7051

Alternate Titles

Forklift Operator
Material Handler
Fork Lift Operator
Truck Driver
Fork Truck Driver
Lift Truck Operator,
Forklift Driver
Fork Lift Technician
Spotter Driver
Fork Lift Driver

Career Connections

Military Connections

Industrial Truck and Tractor Operators are similar to the following military occupational classifications:

Air Force: N/A
Army: N/A
Coast Guard: N/A
Marine Corps: 3536
Navy: N/A

Industry Connections

Other industries that employ this occupation include:

General Warehousing and Storage
Home Centers
Plastics Product Manufacturing
General Freight Trucking

Industrial Truck and Tractor Operators utilize industrial trucks or tractors equipped to move materials around a warehouse, storage yard, factory, construction site, or similar location. Tasks Industrial Truck and Tractor Operators are responsible for include, but are not limited to:

- Inspect product load for accuracy and safely move it around the facility to ensure delivery.
- Move controls to drive gasoline- or electric-powered trucks, cars, or tractors and transport materials between loading, processing, and storage areas.
- Move controls that operate lifting devices, such as forklifts, lift beams, hoists, or elevating platforms, to load, unload, transport, or stack material.
- Position lifting devices under, over, or around loaded pallets, skids, or boxes and secure material or products for transport to designated areas.

Education Requirements

Industrial Truck and Tractor Operators typically have at least a high school diploma or the equivalent plus short-term on-the-job training.

Basic Work Requirements

Industrial Truck and Tractor Operators are required to:

- Spend time using one's hands to control/handle tools
- Wear common protective/safety equipment
- Participate in face-to-face discussions with individuals or a team
- Be exact and/or highly accurate
- Work in an open vehicle or equipment

Top Competencies

Knowledge	Skills	Abilities
Production and Processing	Operation and Control	Control Precision
Mathematics	Operation Monitoring	Multi-limb Coordination
Customer and Personal Service	Coordination	Response Orientation
Public Safety and Security	Equipment Maintenance	Reaction Time
Mechanical	Active Listening	Manual Dexterity



Current Employment:
11,553 Regional Jobs
526,380 National Jobs



2.0%
Projected Regional Growth
(2013-2018)

Entry Wages:
\$10.00 - \$12.00 per hour

Experienced Wages:
\$15.00 - \$18.50 per hour



**Short-term On-the-Job
Training Required**

APPENDIX A:

Occupational Crosswalks to Educational Programs of Study

The table below provides the post-secondary programs of study aligned with each occupation included in the Guide to Careers in the Oil and Natural Gas Industry. For each occupation, one or more relevant programs of study are listed based on the Classification of Instructional Programs (CIP) coding system. Individuals interested in pursuing a career in the Oil and Natural Gas industry can use the table below to begin planning additional education and training that can help to advance into these careers. Only one occupation does not have any aligned programs of study – Helpers, Extraction Workers.

ARCHITECTURE AND ENGINEERING OCCUPATIONS

Occupations	Program of Study/CIP Code
17-1011 Architects	Architecture (04.0201) Environmental Design/Architecture (04.0401) Architecture and Related Services, Other (04.9999)
17-1022 Surveyors	Surveying Technology/Surveying (15.1102)
17-2051 Civil Engineers	Civil Engineering, General (14.0801) Civil Engineering, Other (14.0899) Transportation and Highway Engineering (14.0804) Water Resources Engineering (14.0805)
17-2071 Electrical Engineers	Electrical and Electronics Engineering (14.1001) Electrical, Electronics and Communications Engineering, Other (14.1099)
17-2081 Environmental Engineers	Environmental/Environmental Health Engineering (14.1401)
17-2141 Mechanical Engineers	Mechanical Engineering (14.1901) Electromechanical Engineering (14.4101)
17-2171 Petroleum Engineer	Petroleum Engineering (14.2501)
17-3011 Architectural and Civil Drafters	Drafting and Design Technology/Technician, General (15.1301) CAD/CADD Drafting and/or Design Technology/Technician (15.1302) Architectural Drafting and Architectural CAD/CADD (15.1303) Architectural Technology/Technician (04.0901) Civil Drafting and Civil Engineering CAD/CADD (15.1304) Architectural and Building Sciences/Technology (04.0902) Architectural Sciences and Technology, Other (04.0999)
17-3022 Civil Engineering Technicians	Construction Engineering Technology/Technician (15.1001) Engineering Technology, General (15.0000) Civil Engineering Technology/Technician (15.0201) Building Construction Technology (46.0415)
17-3023 Electronics Engineering Technicians	Electrical, Electronic and Communications Engineering Technology/Technician (15.0303) Engineering Technology, General (15.0000) Computer Technology/Computer Systems Technology (15.1202) Computer Engineering Technology/Technician (15.1201)

		Electrical and Electronic Engineering Technologies/Technicians, Other (15.0399)
		Telecommunications Technology/Technician (15.0305)
		Integrated Circuit Design (15.0306)
17-3025	Environmental Engineering Technicians	Engineering Technology, General (15.0000)
		Environmental Engineering Technology/Environmental Technology (15.0507)
		Hazardous Materials Information Systems Technology/Technician (15.0704)
17-3027	Mechanical Engineering Technicians	Engineering Technology, General (15.0000)
		Mechanical Engineering/Mechanical Technology/Technician (15.0805)
		Mechanical Engineering Related Technologies/Technicians, Other (15.0899)
17-3031	Surveying and Mapping Technicians	Engineering Technology, General (15.0000)
		Surveying Technology/Surveying (15.1102)
		Geographic Information Science and Cartography (45.0702)
19-4031	Chemical Technicians	Food Science (01.1001)
		Chemical Technology/Technician (41.0301)
29-9012	Occupational Health and Safety Technicians	Health Services/Allied Health/Health Services, General (51.0000)
		Environmental Health (51.2202)
		Occupational Health and Industrial Hygiene (51.2206)

SUPERVISORY AND MANAGEMENT OCCUPATIONS

Occupations		Program of Study/CIP Code
49-1011	Supervisors of Installers, Mechanics and Repairers	Operations Management and Supervision (52.0205)
		High Performance and Custom Engine Technician/Mechanic (47.0617)
		Vehicle Maintenance and Repair Technologies, General (47.0600)
		Recreation Vehicle (RV) Service Technician (47.0618)
47-1011	Supervisors of Construction and Extraction Workers	Electrician (46.0302)
		Carpentry/Carpenter (46.0201)
		Plumbing Technology/Plumber (46.0503)
		Construction Trades, General (46.0000)
		Building/Construction Finishing, Management, and Inspection, Other (46.0499)
		Building/Home/Construction Inspection/Inspector (46.0403)
		Building Construction Technology (46.0415)
		Building/Construction Site Management/Manager (46.0412)
		Well Drilling/Driller (46.0504)
51-1011	Supervisors of Production and Operating Workers	Operations Management and Supervision (52.0205)
11-9021	Construction Managers	Business Administration and Management, General (52.0201)

		Business/Commerce, General (52.0101)
		Operations Management and Supervision (52.0205)
		Construction Engineering Technology/Technician (15.1001)
		Construction Management (52.2001)
		Construction Trades, General (46.0000)
11-9199	Supply Chain Managers*	Business Administration and Management, General (52.0201)
		Business/Commerce, General (52.0101)
		Business Administration, Management and Operations, Other (52.0299)
		Business, Management, Marketing, and Related Support Services, Other (52.9999)
		Project Management (52.0211)
13-2099	Risk Management Specialist*	Finance, General (52.0801)
		Financial Mathematics (27.0305)

CONSTRUCTION OCCUPATIONS

Occupations		Program of Study/CIP Code
43-5061	Production, Planning and Expediting Clerks	Parts, Warehousing, and Inventory Management Operations (52.0409)
47-2031	Carpenters	Carpentry/Carpenter (46.0201)
		Construction Trades, General (46.0000)
47-2061	Construction Laborers	Construction Trades, Other (46.9999)
47-2071	Paving, Surfacing and Tamping Equipment Operators	Construction/Heavy Equipment/Earthmoving Equipment Operation (49.0202)
		Construction Trades, General (46.0000)
47-2073	Operating Engineers	Construction/Heavy Equipment/Earthmoving Equipment Operation (49.0202)
		Construction Trades, General (46.0000)
47-2151	Pipelayers	Plumbing Technology/Plumber (46.0503)
		Construction Trades, General (46.0000)
47-2152	Plumbers, Pipefitters, and Steamfitters	Plumbing Technology/Plumber (46.0503)
		Construction Trades, General (46.0000)
		Pipefitting/Pipefitter and Sprinkler Fitter (46.0502)
		Plumbing and Related Water Supply Services, Other (46.0599)
47-4011	Construction and Building Inspectors	Building/Home/Construction Inspection/Inspector (46.0403)

EXTRACTION OCCUPATIONS

Occupations		Program of Study/CIP Code
47-5011	Derrick Operators, Oil and Gas	Well Drilling/Driller (46.0504)
47-5012	Rotary Drill Operators	Well Drilling/Driller (46.0504)
47-5013	Service Unit Operators, Oil, Gas, and Mining	Mining Technology/Technician (15.0901)
47-5021	Earth Drillers	Construction/Heavy Equipment/Earthmoving Equipment Operation (49.0202)
		Well Drilling/Driller (46.0504)

47-5071	Roustabouts, Oil and Gas	Heavy/Industrial Equipment Maintenance Technologies, Other (47.0399)
47-5081	Helpers - Extraction Workers	None available

INSTALLATION, MAINTENANCE AND REPAIR OCCUPATIONS

Occupations	Program of Study/CIP Code
49-3042 Mobile Heavy Equipment Mechanics	Heavy Equipment Maintenance Technology/Technician (47.0302) Agricultural Mechanics and Equipment/Machine Technology (01.0205)
49-9041 Industrial Machinery Mechanics	Industrial Mechanics and Maintenance Technology (47.0303) Heavy/Industrial Equipment Maintenance Technologies, Other (47.0399)
49-9051 Electrical Power-Line Installers and Repairers	Lineworker (46.0303) Electrical and Power Transmission Installation/Installer, General (46.0301) Electrical and Power Transmission Installers, Other (46.0399)
49-9052 Telecommunications Line Installers	Communications Systems Installation and Repair Technology (47.0103)
49-9071 Maintenance and Repair Workers, General	Building/Property Maintenance (46.0401)
49-9098 Helpers - Installation, Maintenance and Repair Workers	Industrial Mechanics and Maintenance Technology (47.0303)

PRODUCTION AND TRANSPORTATION OCCUPATIONS

Occupations	Program of Study/CIP Code
51-4041 Machinists	Machine Tool Technology/Machinist (48.0501) Machine Shop Technology/Assistant (48.0503)
51-4121 Welders, Cutters, Solderers, and Brazers	Welding Technology/Welder (48.0508) Welding Engineering Technology/Technician (15.0614)
51-4193 Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	Machine Tool Technology/Machinist (48.0501) Machine Shop Technology/Assistant (48.0503) Precision Metal Working, Other (48.0599)
53-7071 Gas Compressor and Gas Pumping Station Operator	Well Drilling/Driller (46.0504)
53-7073 Wellhead Pumpers	Well Drilling/Driller (46.0504)
53-3032 Heavy-Truck and Tractor-Trailer Drivers	Truck and Bus Driver/Commercial Vehicle Operator and Instructor (49.0205)
53-7051 Industrial Truck and Tractor Operators	Ground Transportation, Other (49.0299)

Source: Economic Modeling Specialists, Inc. EMSI 2013.2 Class of Worker.

*Note: CIP codes for Supply Chain Managers are for the broader occupation 11-9199 Managers, All Other; CIP codes for Risk Management Specialist are for 13-2099 Financial Specialists, All Other. .

APPENDIX B:

Survey of Oil and Natural Gas Employers

In June 2013, a survey was conducted among employers in the Oil and Gas Industry to inform the development of this career guide. Its goal was to add accuracy and real-time employer input about careers in the industry today, validating information gathered from other secondary sources.

The survey asked the following questions in relation to 47 occupations across five categories in the industry (Architecture & Engineering; Construction; Extraction; Installation, Maintenance & Repair; and Production & Transportation):

1. Minimum education required: (choose from the following options)

- Less than high school
- High school diploma or the equivalent
- Some college, no degree
- Post-secondary non-degree award
- Associate's degree
- Bachelor's degree
- Master's degree
- Doctoral or professional degree

2. Minimum experience required:

- No experience required
- 1 – 2 years in a related field
- 1 – 2 years in the Oil & Natural Gas industry
- 3 – 5 years in a related field
- 3 – 5 years in the Oil & Natural Gas industry
- More than 5 years of experience

3. From a career path perspective, for what related functions or occupations might an individual in this occupation be considered?

4. Have you identified any crosswalks to Military Occupational Classifications (MOC)/ Military Occupational Specialties (MOS) for this occupation?

The survey was completed by 24 employers. Their responses are included on the following pages.

ARCHITECTURE AND ENGINEERING OCCUPATIONS

Occupations	Min. Education	Min. Experience	Career Paths	MOCs
17-1011 Architects	Associate's degree	3-5 years experience in related field	Project Manager, Sales, Superintendent	No
	Some college, no degree	1-2 years experience in related field	Operations Coordinator, Senior Project Manager	No
	Associate's degree	1-2 years experience in related field	Executive Management	Staff Sargent
	Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	Project manager, Sales, Superintendent	No
17-1022 Surveyors	Bachelor's degree	3-5 years experience in related field		No
	Bachelor's degree	1-2 years experience in related field		No
	Bachelor's degree			
17-2051 Civil Engineers	Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	Executive Management	No
	Bachelor's degree	1-2 years experience in related field	Field Engineer	No
	Bachelor's degree	3-5 years experience in related field		No
	Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	Construction Superintendent	No
	Bachelor's degree	More than 5 years experience		No
	Bachelor's degree	No experience required		Yes - Civil Engineers
	Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry		
	Bachelor's degree	No experience required		

17-2071	Electrical Engineers	Bachelor's degree			
		Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry		
		Bachelor's degree	No experience required	Power and controls for compressor and processing facilities	No
		Bachelor's degree	1-2 years experience in the Oil & Natural Gas industry	Electronic Measurement remote data acquisition, Flow Control, Data Systems Design, O&M industry, Odorization of gas, Corrosion control design and O&M utility or midstream	No
		Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	Executive Management	No
		Bachelor's degree	No experience required	Field Engineer	Yes - Field Engineers
17-2081	Environmental Engineers	Bachelor's degree	3-5 years experience in related field	Must be an electrical engineer	No
		Bachelor's degree	1-2 years experience in the Oil & Natural Gas industry	Midstream position: Facilities Engineer (work on compressor station, meter station). For Environmental positions: Regulatory Compliance (permitting; controls - ie: air pollution; treatment - ie: wastewater, flowback treatment design)	No
		Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	HSE Personnel, Air Quality, Regulatory, Safety Performance	No
		Bachelor's degree	1-2 years experience in related field	Field Engineers	No
		Bachelor's degree	3-5 years experience in related field	Environmental Health and Safety	No
		Bachelor's degree	1-2 years experience in related field		No
		Bachelor's degree	No experience required		Yes - Field Engineers

		Bachelor's degree	No experience required		Yes - We hired a MRO
		Bachelor's degree	3-5 years experience in related field		
		Bachelor's degree			
		Bachelor's degree			
17-2141	Mechanical Engineers	Bachelor's degree	1-2 years experience in the Oil & Natural Gas industry	Midstream position: Facilities Engineer (work on compressor station, meter station).	No
		Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	Engineering, Business Development	No
		Bachelor's degree	1-2 years experience in related field	Production, Environmental, Operations	No
		Bachelor's degree	1-2 years experience in related field	Pipeline Engineer	No
		Bachelor's degree	1-2 years experience in the Oil & Natural Gas industry	Operations Foreman, Operations Engineer, Pipeline Tech	No
		Bachelor's degree	No experience required	Compressor Station System Design, O&M Utility, Pipeline, Measurement Design, Utility or Midstream O&M	No
		Bachelor's degree	3-5 years experience in related field	Executive Management	No
		Bachelor's degree	1-2 years experience in the Oil & Natural Gas industry	Field Engineer	No
		Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	Must be a Mechanical Engineer	Yes - Field Engineers
		Bachelor's degree	No experience required		No
		Bachelor's degree	No experience required		

17-2171	Petroleum Engineer	Bachelor's degree	No experience required	Production Operator (2-4 years) then choose other areas: Completions, Drilling, Reservoir Engineering and Facilities Design (equipment); Advanced Degrees needed for Reservoir Simulation	No
		Bachelor's degree	No experience required	Environmental, Operations, Drilling Engineering	No
		Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry		No
		Some college, no degree	No experience required	Reservoir Engineer, Drilling Engineer, Operations Engineer	No
		High school diploma or equivalent	1-2 years experience in related field	Field Engineers	Yes - Field Engineers
		Bachelor's degree	No experience required	Completions/Production/Drilling/Facilities Engineering	No
		Bachelor's degree	No experience required		
		Bachelor's degree	1-2 years experience in related field		
17-3011	Architectural and Civil Drafters	Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	Middle Management	No
		Associate's degree	No experience required		No
		Postsecondary non-degree award	1-2 years experience in related field		
		Some college, no degree	3-5 years experience in the Oil & Natural Gas industry		
		Bachelor's degree	1-2 years experience in related field		
17-3022	Civil Engineering Technicians	Associate's degree	No experience required	Civil Engineering Technician	No
		Bachelor's degree	1-2 years experience in related field	Site Selection and Project Management, Water Sourcing for well completions	No

		Associate's degree	3-5 years experience in related field	Front Line Management	No
		Associate's degree	1-2 years experience in related field	Field Engineers	No
		Associate's degree	No experience required		Yes - field engineers
		Bachelor's degree	1-2 years experience in the Oil & Natural Gas industry		
		Some college, no degree	No experience required		
		Bachelor's degree			
17-3023	Electronics Engineering Technicians	Associate's degree	No experience required	Automation Technician	Yes - Electronics Technicians
		High school diploma or equivalent	1-2 years experience in related field	Metering or Instrumentation Tech, Pipeline Tech	No
		High school diploma or equivalent	3-5 years experience in related field	Electronic Measurement, Flow Control Installations, Project Management, Utility O&M, Corrosion Control Technicians, Automation Technicians	No
		Associate's degree	1-2 years experience in related field	Field Engineers	Yes - Field Engineers
		Bachelor's degree	No experience required		
17-3025	Environmental Engineering Technicians	Associate's degree	1-2 years experience in the Oil & Natural Gas industry	Environmental Specialist (Level 1-3), Sr. Specialist, Staff Specialist, Sr. Staff Specialist (needs 2 year degree), Environmental Advisor (need Bachelor's)	No
		High school diploma or equivalent	No experience required	CDL Driver, Equipment Operator	Yes - EOD, Demolition, Truck Driver
		Some college, no degree	No experience required	Field Engineers	Yes - Field Engineer

		Bachelor's degree	1-2 years experience in related field		
		Bachelor's degree	1-2 years experience in the Oil & Natural Gas industry		
		High school diploma or equivalent			
17-3027	Mechanical Engineering Technicians	Bachelor's degree	1-2 years experience in related field	Project Manager, Field Supervisor	No
		Some college, no degree	1-2 years experience in the Oil & Natural Gas industry	Front Line Management	No
		Bachelor's degree	No experience required	Field Engineer	Yes - field engineer
17-3031	Surveying and Mapping Technicians	Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	GIS Specialist/Analyst, Engineering Tech, Project Manager	No
		High school diploma or equivalent	1-2 years experience in related field		No
		Associate's degree	1-2 years experience in related field		No
		Associate's degree	No experience required		
		Less than high school			
19-4031	Chemical Technicians	Associate's degree	1-2 years experience in the Oil & Natural Gas industry	Laboratory Tech to analyze liquid and gas vapor samples, various other industry lab analysis technician	No
		Bachelor's degree	No experience required	Field Engineer	Yes - field Engineer

CONSTRUCTION OCCUPATIONS

Occupations	Min. Education	Min. Experience	Career Path	MOCs	
11-9021	Construction Managers	High school diploma or equivalent	3-5 years experience in related field	Field Foreman, Senior Field Foreman, Superintendent	Yes - Mechanic
		Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	Site Supervisor, Construction Manager	No
		High school diploma or equivalent	3-5 years experience in related field	Specialist to Superintendent	No
		High school diploma or equivalent	1-2 years experience in the Oil & Natural Gas industry	Senior Project Manager	No
		Some college, no degree	3-5 years experience in related field	Project Managers for facility stations, tank farm systems, metering interconnects for custody transfer of product	No
		High school diploma or equivalent	3-5 years experience in related field	Front Line Management	No
		Associate's degree	3-5 years experience in the Oil & Natural Gas industry	Entry-level Operators	No
		Some college, no degree	No experience required	Construction Foreman/Superintendent	No
		High school diploma or equivalent	3-5 years experience in the Oil & Natural Gas industry		
		High school diploma or equivalent	No experience required		
		High school diploma or equivalent	1-2 years experience in the Oil & Natural Gas industry		
		High school diploma or equivalent			
		High school diploma or equivalent			

47-1011	Supervisors of Construction and Extraction Workers	High school diploma or equivalent	More than 5 years experience	Construction Supervisor, Field Supervisor	No
		Some college, no degree	3-5 years experience in related field	Oilfield Services Coordinator	No
		Postsecondary non-degree award	1-2 years experience in the Oil & Natural Gas industry	Front Line Management	No
		High school diploma or equivalent	3-5 years experience in the Oil & Natural Gas industry	Entry-level Operators	No
		High school diploma or equivalent	No experience required		
		High school diploma or equivalent			
47-2031	Carpenters	High school diploma or equivalent	1-2 years experience in related field	Installer	No
		High school diploma or equivalent	1-2 years experience in related field	Entry-level Operators	No
		High school diploma or equivalent	No experience required		
47-2061	Construction Laborers	High school diploma or equivalent	No experience required	Entry-level Operators	No
		High school diploma or equivalent	No experience required		
47-2071	Paving, Surfacing and Tamping Equipment Operators	High school diploma or equivalent	No experience required	Entry-level Operators	No
47-2073	Operating Engineers	High school diploma or equivalent	3-5 years experience in related field	Equipment Operator	Yes - SEABEE, Equipment Operator
		Postsecondary non-degree award	1-2 years experience in related field	Entry-level Operators	No

		High school diploma or equivalent	No experience required		
47-2151	Pipelayers	No Responses			
47-2152	Plumbers, Pipefitters, and Steamfitters	High school diploma or equivalent	3-5 years experience in related field	Pumper, Well Tender	No
47-4011	Construction and Building Inspectors	Some college, no degree	1-2 years experience in related field		
		Bachelor's degree	No experience required		

EXTRACTION OCCUPATIONS

Occupations		Min. Education	Min. Experience	Career Paths	MOCs
47-5011	Derrick Operators, Oil and Gas	High school diploma or equivalent	1-2 years experience in related field	Operations Manager, Rig Manager	No
		Associate's degree	3-5 years experience in the Oil & Natural Gas industry	Service Company Roustabouts	No
		High school diploma or equivalent	3-5 years experience in related field	Entry-level Operators	
		Less than high school	No experience required		
		High school diploma or equivalent	No experience required		
47-5012	Rotary Drill Operators	High school diploma or equivalent	1-2 years experience in the Oil & Natural Gas industry	Operations Manager, Rig manager	No
		Less than high school	No experience required	Entry-level Operators	
		High school diploma or equivalent	No experience required		
47-5013	Service Unit Operators, Oil, Gas, and Mining	High school diploma or equivalent	1-2 years experience in the Oil & Natural Gas industry	Operations Manager, Rig Manager, Company Man	No

		Some college, no degree	More than 5 years experience	Pumper, Well Tender	No
		High school diploma or equivalent	3-5 years experience in the Oil & Natural Gas industry	Entry-level Operators	
		Less than high school	No experience required	Well Tender/Pumper	
		Less than high school	No experience required		
		High school diploma or equivalent	1-2 years experience in related field		
47-5021	Earth Drillers	High school diploma or equivalent	No experience required	Entry-level Operators	No
47-5071	Roustabouts, Oil and Gas	High school diploma or equivalent	No experience required	Roustabout, Lease Operator, Analyst, Field Foreman, Superintendent	No
		High school diploma or equivalent	No experience required	Rig Manager	No
		High school diploma or equivalent	3-5 years experience in related field	Pumpers, Well Tenders	No
		Less than high school	No experience required	Entry-level Operators	
		Less than high school	No experience required		
47-5081	Helpers - Extraction Workers	High school diploma or equivalent	No experience required	Rig Manager	No
		Less than high school	No experience required	entry level operators	

INSTALLATION, MAINTENANCE AND REPAIR OCCUPATIONS

Occupations	Min. Education	Min. Experience	Career Path	MOCs
49-1011 Supervisors of Installers, Mechanics, and Repairers	Some college, no degree	3-5 years experience in related field	Foreman	Yes - Any supervisory position

49-3042	Mobile Heavy Equipment Mechanics	Some college, no degree	More than 5 years experience	Shop or Facilities Manager	Yes - Nuclear Navy technician
		High school diploma or equivalent	3-5 years experience in the Oil & Natural Gas industry	Front Line Management	No
		Less than high school	No experience required	Entry-level Operators	Yes
		High school diploma or equivalent	3-5 years experience in related field	Mechanic	
		High school diploma or equivalent	1-2 years experience in related field	Mechanic (ie - for compressor station)	Yes - mechanic
		Postsecondary non-degree award	More than 5 years experience	Lead Mechanic	Yes - Mechanic
		High school diploma or equivalent	No experience required	Team lead	Yes - Navy nuclear technician
		High school diploma or equivalent	No experience required	Entry-level Operators	No
		Associate's degree	No experience required	Can be an Aircraft, Truck, or Car Mechanic	Yes
49-9041	Industrial Machinery Mechanics	High school diploma or equivalent	1-2 years experience in related field	Mechanic (i.e. - for compressor station)	Yes - mechanic
		Some college, no degree	1-2 years experience in related field	Mud Motor Technician	No
		High school diploma or equivalent	3-5 years experience in related field	Compressor Tech	Yes - Navy nuclear technician
		High school diploma or equivalent	No experience required	Team Lead	No
		High school diploma or equivalent	No experience required	Entry-level Operator	Yes - 1142
		Associate's degree	1-2 years experience in related field		

49-9051	Electrical Power-Line Installers and Repairers	No Responses			
49-9052	Telecommunications Line Installers	High school diploma or equivalent	1-2 years experience in related field	Automation Technician or ITS Analyst	Yes – Communications Specialist (i.e. on mine sweeper)
		Associate's degree	3-5 years experience in related field	Automation Technician, VSAT Systems O&M	No
49-9071	Maintenance and Repair Workers, General	High school diploma or equivalent	1-2 years experience in related field	Fieldman	Yes - Anything in mechanical field of work
		High school diploma or equivalent	3-5 years experience in related field	Station Operator, Compressor Mechanic	No
		High school diploma or equivalent	3-5 years experience in related field	Shop Hand, Mud Motor Rebuild Tech	Yes - Navy nuclear technician
		High school diploma or equivalent	No experience required	Team Lead	No
		High school diploma or equivalent	No experience required	Entry-level Operators	
		High school diploma or equivalent			
49-9098	Helpers - Installation, Maintenance and Repair Workers	High school diploma or equivalent	1-2 years experience in related field	For midstream: Roustabout, Automation Installer	No
		High school diploma or equivalent	3-5 years experience in related field	Shop Helper	No
		High school diploma or equivalent	No experience required	Mechanic	
		Associate's degree	No experience required	Entry-level Operators	
		High school diploma or equivalent			

PRODUCTION AND TRANSPORTATION OCCUPATIONS

Occupations	Min. Education	Min. Experience	Career Paths	MOCs
11-9199 Supply Chain Managers	Bachelor's degree	1-2 years experience in related field	Logistics Coordinator, Procurement Representative, Materials Management	Yes - logistics coordinator
	Associate's degree	More than 5 years experience	Purchasing Manager	Yes
	Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	Senior Management	No
	Bachelor's degree	3-5 years experience in related field	Field Buyer/ Planner	Yes
	Bachelor's degree	More than 5 years experience		
13-2099 Risk Management Specialists	Bachelor's degree	More than 5 years experience	Director of EH & S	No
	Bachelor's degree	More than 5 years experience	Senior Management	No
	Bachelor's degree	More than 5 years experience		
51-1011 Supervisors of Production and Operating Workers	Some college, no degree	3-5 years experience in related field	Foreman	Yes - anything with supervisory experience
	Bachelor's degree	More than 5 years experience	Area Supervisor, Station Supervisor	No
	Postsecondary non-degree award	3-5 years experience in the Oil & Natural Gas industry	Oilfield Services Manager	No
	Bachelor's degree	3-5 years experience in the Oil & Natural Gas industry	Middle Management	No
	High school diploma or equivalent	3-5 years experience in the Oil & Natural Gas industry		

43-5061	Production, Planning, and Expediting Clerks	Bachelor's degree	1-2 years experience in the Oil & Natural Gas industry	Logistics Coordinator, Procurement Representative, Materials Management	Yes - Logistics coordinator
		High school diploma or equivalent	No experience required	Team Lead	No
		Bachelor's degree	3-5 years experience in related field		
51-4041	Machinists	High school diploma or equivalent	No experience required	Team lead	No
		Associate's degree	1-2 years experience in related field		No
51-4121	Welders, Cutters, Solderers, and Brazers	Postsecondary non-degree award	More than 5 years experience	Welder	Yes - Welder
		Postsecondary non-degree award	1-2 years experience in related field		No
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	No experience required	Will train the right person	No
53-7071	Gas Compressor and Gas Pumping Station Operator	High school diploma or equivalent	3-5 years experience in the Oil & Natural Gas industry	Plant Operator	Yes - Mechanical positions
		High school diploma or equivalent	3-5 years experience in related field	Station Operator, Station Mechanic	No
		High school diploma or equivalent	3-5 years experience in related field	Compressor Tech	No
		High school diploma or equivalent	1-2 years experience in related field	Natural Gas or Liquid Compressor Station Operator	No
		High school diploma or equivalent	1-2 years experience in the Oil & Natural Gas industry	Team Lead	Yes - Navy nuclear technician
		High school diploma or equivalent	No experience required		
53-7073	Wellhead Pumpers	High school diploma or equivalent	No experience required	Roustabout, Lease Operator, Analyst, Field Foreman, Superintendent	No

53-3032	Heavy-Truck and Tractor-Trailer Drivers	High school diploma or equivalent	3-5 years experience in related field	Pumper, WellTender	Yes - Navy nuclear technician
		Less than high school	No experience required	Team Lead	
		High school diploma or equivalent	No experience required		
		Associate's degree	No experience required		
		High school diploma or equivalent			
		High school diploma or equivalent	1-2 years experience in related field	Wireline Operator, CDL Driver, Gyro Surveyor	No
		High school diploma or equivalent	1-2 years experience in related field	N/A	Yes - Truck Driver
		High school diploma or equivalent	1-2 years experience in the Oil & Natural Gas industry	Lead Driver, Truck Boss	No
		High school diploma or equivalent	1-2 years experience in related field	Water Truck Drivers	No
		High school diploma or equivalent	No experience required	Team Lead	No
53-7051	Industrial Truck and Tractor Operators	High school diploma or equivalent	No experience required	Entry-level Operators	No
		High school diploma or equivalent	3-5 years experience in related field		
		High school diploma or equivalent	1-2 years experience in the Oil & Natural Gas industry	Lead Driver, Truck Boss	Yes - Truck Driver
		High school diploma or equivalent	1-2 years experience in related field	Team lead	No
		High school diploma or equivalent	No experience required		