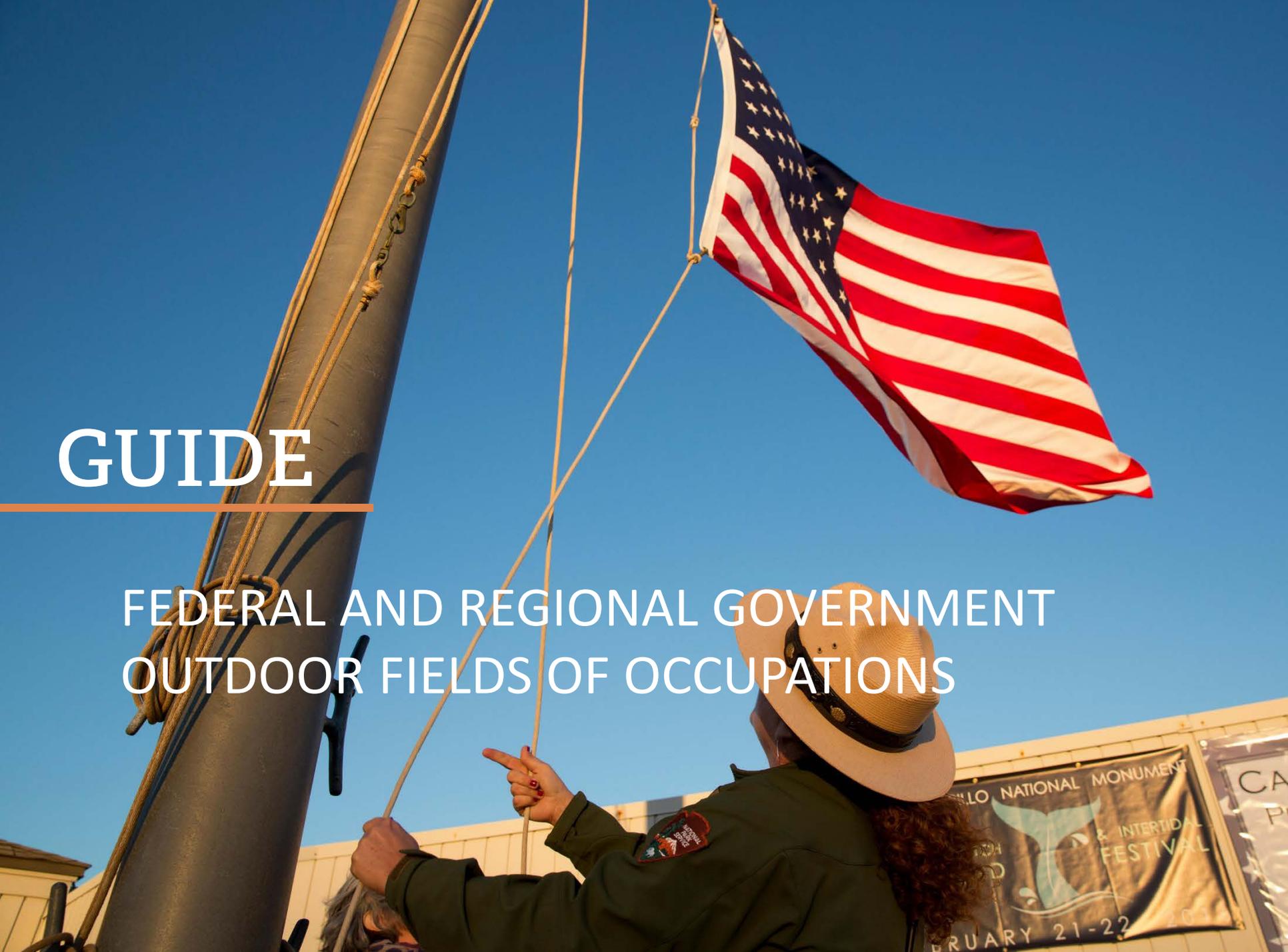


GUIDE

FEDERAL AND REGIONAL GOVERNMENT OUTDOOR FIELDS OF OCCUPATIONS



INTRODUCTION

This guide offers an overview of outdoor related fields of occupations, most relevant for federal and local government agencies. It includes opportunities to work IN the outdoors as well as FOR the outdoors.

If you are a recent graduate, this guide will help you not only to understand the typical occupations, but also the educational requirements to start a career.



GOVERNMENT SECTOR

There are many outdoor related fields of occupations where federal and local agencies provide career opportunities, such as natural resources, outdoor recreation and conservation, or environmental education. But in order to provide a clear overview about the most relevant fields of occupations in the government sector, we limit this guide to the most popular fields of occupation.

In addition, when studying outdoor career opportunities outside the government sector, you might find an overlap for some fields of occupations and similar career paths for nonprofits, education or commercial businesses. Depending of the sector you are looking for a job, be aware of different requirements for both, educational background and job application materials.

Parks and Recreation

Parks and recreation focus on the human use of natural resources for enjoyment, socialization, education, health and well-being. The field combines knowledge of the environment with skills in social sciences, economics and business.

Land Management

The land management field combines information about the physical environment with biological factors such as wildlife habitat, and human factors such as recreation, livestock grazing, mineral development, energy production, the preservation of historical or cultural resources and policy to determine how public lands can be managed for multiple uses and benefits.

Wildlife and Fisheries

Fisheries and wildlife are scientific disciplines including research, management, education, and law enforcement to sustain fish and wildlife populations.

Forestry

The field of forestry combines physical, biological and engineering sciences to manage and improve our nation's forest lands in both rural and urban settings. These lands not only include the trees of a forest but other plants, the soil, water, wildlife and human use.

Geoscience

Geoscience is a scientific field that involves the collection and interpretation of data about the Earth in order to improve the quality of human life. Major disciplines of geoscience include geology, geophysics, hydrology, oceanography, marine science, atmospheric science, planetary science, meteorology, environmental science, and soil science.

Water Management

Water management applies physical, chemical and biological sciences along with math, technology, engineering, economics, and law to making decisions about both water quality and water quantity.

THE FIELD OF LAND MANAGEMENT

What is the field of land management?

The land management field combines information about the physical environment with biological factors such as wildlife habitat, and human factors such as recreation, livestock grazing, mineral development, energy production, the preservation of historical or cultural resources and policy to determine how public lands can be managed for multiple uses and benefits.

What Education is required?

Degrees in the field of land management include majors such as land and energy management, ecology, natural resource management, and forestry. Program levels range from undergraduate to graduate degree options and are offered both at colleges and universities, as well as online.

Admission to these programs requires a high school diploma at the undergraduate level. Minimum GPA requirements and/or test scores may also be required. A bachelor's degree in a related field, such as science, engineering, or agriculture, is required at the graduate level, and GRE scores may be required as well. Applicants should have an aptitude for the natural sciences. Some programs will include internships as part of the curriculum.

What is a land management professional?

A land management professional works with other natural resource professionals and often with the public to determine what a particular area of land should be used for. Because land is managed for a variety of uses, land managers have knowledge of many related fields as well as critical thinking, problem solving and communication skills. Because the field of land management encompasses the physical, biological and human environments there are a variety of careers available.

Who employs land management professionals?

Federal Agencies

- US Forest Service
- Bureau of Land Management
- National Park Service
- Natural Resource Conservation Service
- US Geological Survey
- US Forest Service

State and Local Government Jobs

- City and County agencies

Others

- Non profit organizations

Sample Careers

Technician

- GIS Technician
- Range Technician
- Soil Conservation Technician
- Survey Aid

Professional

- Archeologist
- Cartographer
- Economist
- Realty Specialist
- Environmental Lawyer
- Environmental Planner
- Environmental Policy Specialist
- GIS Specialist, GIS Analyst
- Habitat Conservation Specialist
- Land Acquisition Specialist
- Land Surveyor, Surveyor
- Land Use Planner
- Law Enforcement Ranger
- Mine Rehabilitation
- Range Management Specialist
- Reclamation Specialist
- Restoration Ecologist
- Soil Scientist
- Systems Analyst
- Terrain Analyst

Management

- Open Space Director
- Park Manager
- Professor
- Public Lands Director
- Rangeland Manager
- Refuge Manager
- Resource Manager



Additional Information

Professional Societies: Soil Science Society of America, U.S. Consortium of Soil Science Associations, Society for Conservation Biology, Society for Rangeland Management, Society for Ecological Restoration, Weed Science Society of America

THE FIELD OF PARKS AND RECREATION

What is the field of parks and recreation?

Parks and recreation focus on the human use of natural resources for enjoyment, socialization, education, health and well-being. The field combines knowledge of the environment with skills in social sciences, economics and business.

What Education is required?

Undergraduate majors include (but not limited to):

- Park and Resource Management
- Recreation and Park Administration – Recreation Management
- Recreation and Park Administration – Therapeutic Recreation
- Community Sports Management
- Tourism Development and Management
- Nonprofit Leadership and Management
- Wildlife and Outdoor Enterprise Management

Graduate degrees include (but not limited to):

- Masters in Recreation and Tourism
- Park and Resource Management
- Environmental Education
- Master of Advanced Study in Sustainable Tourism
- Master of Science in Community Resources and Development

Additional Information

<http://www.collegevaluesonline.com/rankings/best-value-bachelor-degrees-in-parks-recreation-and-leisure/>

Professional Societies: Association of Outdoor Recreation and Education, Outdoor Industry Association, Association for Experiential Education, Wilderness Education Association, National Association for Interpretation, National Recreation and Parks Association, The American Zoo and Aquatic Association

What is a parks and recreation professional?

A parks and recreation professional plans, organizes, and administers recreation programs, services, and activities in a variety of settings and to diverse audiences. Parks and recreation professionals may work at national, state and local parks and open space, sports centers, resorts, and camps. Parks and recreation professionals must work well with others as well as exhibit leadership, creativity and good decision-making.

Who employs parks and recreation professionals?

Federal Agencies

- Bureau of Land Management
- National Park Service
- US Fish and Wildlife Service
- US Forest Service

State and Local Government Jobs

- Local government
- City and county agencies

Others

- *Non profit organizations*
- *Private Businesses*

Sample Careers

Entry-level / Technician

- Camp Counselor
- Day Camp Leader
- Field Crew
- Guest Services
- Park Maintenance
- Community Assistant
- Education Technician
- Environmental Technician
- Parks Technician
- Ranger Assistant
- Recreation Technician
- Visitor Services
- Administrative Assistant
- Visitor Use Assistant
- Wilderness Technician

Professional

- Adventure Guide
- Community Organizer
- Education Specialist
- Environmental Educator
- Event Coordinator
- Field Instructor
- Naturalist
- Outreach Coordinator
- Park Ranger
- Parks Planner
- Playground Safety Inspector
- Recreation Coordinator
- River Rafting Guide
- Sustainability Consultant
- Tour Guide
- Visitor Studies Coordinator
- Volunteer Coordinator
- Wilderness Ranger

Management

- Director of Activities
- Director of Education
- Director of Parks, Trails and Recreation
- District Manager



THE FIELD OF FORESTRY

What is the field of forestry?

The field of forestry combines physical, biological and engineering sciences to manage and improve our nation's forest lands in both rural and urban settings. These lands not only include the trees of a forest but other plants, the soil, water, wildlife and human use.

What Education is required?

According to the U.S. Bureau of Labor Statistics, forestry workers don't need a college degree. However, an associate's degree can provide valuable training and a competitive edge in the field. Forestry technician jobs typically require an associate's degree accredited by the Society of American Foresters, and a bachelor's degree from an accredited school is the entry-level requirement for becoming a forester.

Associate's degree

There are many (2-year) **associate's degrees** in forestry, like the Associate of Applied Science in Forest Technology and the Associate of Science in Forestry and Wildlife Management. Courses may include forest ecology, dendrology, forest diseases, silvicultural, urban forestry and wildlife management. Such programs include field training in inventorying forests and animal populations, using GPS and GIS, measuring forest health and determining property lines.

Bachelor's and Master's degrees

- **Bachelor's degree** programs take a broader approach, offering students a stronger background in ecology, the life sciences and the physical sciences along with forestry-specific coursework. The forestry curriculum is similar to that of an associate's degree program, but it may include more management courses, like recreation management, ecosystem management and resource management. Field training is also required. Bachelor's degree programs may even offer specialization areas, like forest management or forest restoration. Programs often offer internship opportunities as well.
- The **Master of Science in Forestry** is a research-based degree that typically precedes doctoral studies. The Master of Forestry and the Master of Natural Resources are terminal, professional degrees. Some schools offer a PhD in Forestry.

What is a forestry professional?

Forestry professionals gather information about forest resources and make decisions to best manage them. A forestry professional may develop and evaluate forest and fire management plans, provide technical advice, or design plans with interdisciplinary teams of employees to keep forests and grassland environments healthy. Forestry professionals include recreation specialists, professionals with expertise in fire and fuels management, environmental/land use planners, and conservation, watershed and wildlife management professionals. Most professionals use GIS/GPS and remote sensing skills

Who employs forestry professionals?

Federal Agencies

- Bureau of Land Management
- National Park Service
- US Forest Service

State and Local Government Jobs

- City and county agencies

Others

- Private Businesses

Sample Careers

Technician and Entry Level

- Campground Maintenance
- Internships
- Trail Crew
- Volunteer
- Wildland Firefighter

- Fire Program Assistant
- Forestry Aid
- Forestry Technician
- Plant Protection Technician
- Soil Conservation Technician

Professionals

- Arborist
- Silviculturist
- Botanist
- Soil Scientist
- Fire Communications Specialist
- Wood Scientist
- Forest Fire Management Officer
- Forester, Research Forester, Urban Forester,
- Consulting Forester
- Fuels Forester

Management

- Forest Manager
- Forest Supervisor
- Professor



Additional Information

http://learn.org/articles/What_Education_is_Necessary_for_a_Career_in_Forestry.html

Professional Societies: Society of American Foresters, Weed Science Society of America

THE FIELD OF WILDLIFE AND FISHERIES

What is the field of wildlife and fisheries?

Fisheries and wildlife are scientific disciplines including research, management, education, and law enforcement to sustain healthy fish and wildlife populations.

What Education is required?

Entry level jobs generally require a Bachelors Degree in one of the following or related fields:

- Biological Science
- Environmental Science
- Forestry
- Natural Resources Management
- Wildlife Biology
- Wildlife & Fisheries Science

A Master of Science in these degrees may result in a better starting position, salary and career advancement potential.

A position in academia will require a PhD.

Strong computer literacy and a background in geographic information systems (GIS) are also recommended.

Additional Information

Professional Societies: [The Wildlife Society](#), University of Missouri's comprehensive [list of F&W Professional Societies](#),

Additional Resources: [Careers in Forestry & Natural Resources](#), [Jobs in Wildlife](#),

What is a wildlife and fisheries professional?

A fish and wild life professional may work in research to determine the status of animal populations, the interactions between animals, how animals react to different environmental conditions, an animal's habitat requirements, behavior or distribution. Fish and wild life managers put this information to use in the field by designing practices that improve fish and wildlife populations. Much of fish and wildlife management is actually people management. An effective fisheries and wildlife professional must have education in economics, political science and law, psychology, sociology and history. Skillful communication, written and oral, is one of the most important tools a fish and wildlife professional uses.

Who employs wildlife and fisheries professionals?

Federal Agencies

- Bureau of Land Management
- National Park Service
- US Forest Service
- US Fish and Wildlife Service
- National Oceanic and Atmospheric Administration
- US Geological Survey

State and Local Government Jobs

- State, City and county agencies

Others

- Private Businesses
- Non-profit organizations

Sample Careers

Technician

- Biological Science Technician
- Fisheries Technician
- Wildlife Technician

Professional

- Animal Research Scientist
- Aquatic Invasive Species Biologist
- Aquaculturist
- Biological Scientist
- Conservation Biologist
- Ecologist
- Entomologist
- Environmental Scientist
- Fisheries Biologist
- Game Warden
- Habitat Conservation Specialist
- Herpetologist
- Project Manager
- Research Scientist
- Wildlife Biologist
- Zoologist

Management

- District Wildlife Manager
- Fish Hatchery Manager
- Hatchery Manager
- Professor
- Supervisory Biologist
- Wildlife Refuge Manager



THE FIELD OF WATER MANAGEMENT

What is the field of water management?

Water management applies physical, chemical and biological sciences along with math, technology, engineering, economics, and law to making decisions about both water quality and water quantity. Depending on who you work for, the work may focus on water resource assessment, development, and/or protection. There are a growing number of opportunities in this field based on rapidly changing climatic factors and population growth.

What Education is required?

Entry level jobs generally require a Bachelors Degree in one of the following or related fields:

- Physical Science
- Biological Science
- Engineering
- Hydrology
- Forestry

A Master of Science in these degrees may result in a better starting position, salary and advancement potential.

A position in academia will require a PhD.

Strong computer literacy and a background in geographic information systems (GIS) are also recommended.

What is a water management professional?

Water is not only one of our most important resources, it also links many environmental systems together and therefore, is central to many environmental problems. The field of water management is challenging because of the growing water needs of humans and because water spans multiple jurisdictional boundaries. Because of this, water professionals must not only be skilled in the sciences but also in problem solving, communication and working with other natural resource professionals

Who employs water management professionals?

Federal Agencies

- Bureau of Land Management
- Bureau of Reclamation
- Army Corp of Engineers
- National Park Service
- Natural Resource Conservation Service
- U.S. Forest Service
- U.S. Geological Survey

State and Local Government Jobs

- City and county agencies

Others

- Private Businesses
- Non-profit organizations

Sample Careers

Technician

- Aquatic Biologist
- Aquatic Restoration Technician
- Aquatic Toxicologist
- Environmental Sampling/Monitoring Technician
- Hydrology Technician
- Lab Analysis Technician
- Groundwater Remediation Technician
- Hydraulic Specialist

Professionals

- Hydrogeologist
- Hydrologist
- Local or State Water Planner
- Storm water Technician
- Surface Water Monitoring Technician
- Water Law Expert
- Water Treatment Expert
- Watershed Planner
- Watershed Scientist
- Ground Water Specialist
- Stormwater Compliance Inspector
- Water Conservation Specialist
- Water Quality Analyst
- Water Quality Specialist
- Water Recycling and Solid-Waste Engineer
- Water Supply Forecaster
- Wetland Delineation Specialist

Management

- Plant Operator
- Water Treatment Operator



Additional Information

Professional Societies: [American Water Resources Association](#), [American Society of Civil Engineers \(ASCE\)](#), [Water Quality Association](#),

THE FIELD OF GEOSCIENCE

What is the field of geoscience?

Geoscience is a scientific field that involves the collection and interpretation of data about the Earth in order to improve the quality of human life. Major disciplines of geoscience include geology, geophysics, hydrology, oceanography, marine science, atmospheric science, planetary science, meteorology, environmental science, and soil science

What Education is required?

- Associate's or Bachelor's Degree in a related field
- Master's Degree in geology, geoscience, earth-systems science, environmental science or a related field
- Master's Degree or PhD in a related field and experience

What is a geoscience professional?

The work and career path of a geoscience professional is varied. Many geoscience professionals are hired for exploration, development, production and research. Some investigate the Earth's physical environment including its soils, oceans and atmosphere while others measure global climate change, locate adequate supplies of natural resources, such as ground water, petroleum, and metals and how to balance society's demand for natural resources and the sustainability of our natural resources. Most geoscientists are employed by industries related to oil and gas, mining and minerals and water resources.

Who employs forestry professionals?

Federal Agencies

- Bureau of Land Management
- National Oceanic and Atmospheric Administration
- US Army Corps of Engineers
- US Department of Agriculture
- US Department of Energy
- US Geological Survey
- US Forest Service

State and Local Government Jobs

- State, City and county agencies

Others

- Private Businesses: petroleum, mining, power

Sample Careers

Technician

- Geotechnician
- Soil Conservation

Professional

- Atmospheric Scientist
- Economic Geologist
- Engineering Geologist
- Environmental Consultant
- Environmental Geologist
- Geochemist
- Geologist
- Geomorphologist
- Hydrogeologist
- Hydrologist
- Marine Geologist
- Meteorologist
- Mining Geologist
- Oceanographer
- Petroleum Engineer
- Physical Scientist
- Sedimentologist
- Research Geophysicist
- Soil Scientist

Management

- Supervisory Geologist
- Supervisory Physical Scientist



Additional Information

Professional Societies: Geological Society of America, American Association of Petroleum Geologists

Contact



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