Applied Research Associates, Inc.

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www.ara.com

DUNS #: 097967608

Type of Contractor: C - LARGE BUSINESS

CAGE Code #: 9R446

Federal Tax ID#: 85-0276434

GENERAL SERVICES ADMINISTRATION

FEDERAL SUPPLY SERVICE

AUTHORIZED FEDERAL SUPPLY SCHEDULE PRICE LIST

On-line access to contract ordering information, terms and conditions, up-to-date pricing, and the option to create an electronic delivery order are available through GSA *Advantage!*™ , a menu-driven database system. The INTERNET address for GSA *Advantage!*™ is: http://www.gsaadvantage.gov/.

ENVIRONMENTAL SERVICES SCHEDULE 899

FSC GROUP 899

CONTRACT # GS-10F-0195P

Contract Period: February 13, 2009 to February 12, 2014

For more information on ordering from Federal Supply Schedules, click on the FSS Schedules button at http://www.fss.gsa.gov.

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INTRODUCTION

Applied Research Associates Inc. (ARA) is a research and engineering firm specializing in the solution of complex and challenging technical problems. We routinely develop innovative solutions to exciting, multi-disciplinary problems with national and international significance. We have expanded steadily since 1979 and currently operate at 40 locations in 21 states and in Canada.

ARA offers a broad range of services in the environmental field. We apply our unique problem solving and research capabilities to provide innovative solutions to benefit our customers and our environment. Our expertise includes specific capabilities in the areas of:

- Pollution Prevention and Remediation
- Advanced Chemical and Biological Treatment Technologies
- Operation of Laboratory and Research Facilities
- Design and Manufacture of Specialized Instrumentation
- Development of Environmental Engineering Software
- Environmental Site Characterization/Investigation
- Environmental Risk Analysis

ARA's expertise spans a variety of disciplines from the physical to the computational sciences. We excel in the areas of:

Defense Technologies

- Weapon effectiveness
- Penetration technology
- Computational fluid mechanics
- Protective design
- Conventional weapons effects
- Robotic technologies

Systems Analysis

- Systems engineering and integration
- Risk and reliability analysis
- General systems analysis and integration

Civil Technologies

- Pavement engineering
- Security engineering
- Environmental engineering
- Fire fighting research
- Wind engineering
- Earthquake engineering
- Structural engineering
- Non-invasive evaluations
- Transportation engineering

Testing and Measurement

- Field testing and measurement
- Laboratory testing
- Environmental and geotechnical measurements and systems
- Instrumentation design
- Product qualification and certification

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CUSTOMER INFORMATION

AWARDED SPECIAL ITEM NUMBER(S)

SIN 899-1: Environmental Planning Services & Documentation. ARA's extensive experience in environmental assessment is evidenced in the EPA SITE Phase I Study, Roosevelt Mills (CT) and the Innovative Site Assessment of the Defense Fuel Support Point of Lynn Haven (FL). These projects involved development and evaluation of new investigative technologies, and required extensive environmental documentation and knowledge of governmental regulations, as well as the ability to deal successfully with multiple groups of stakeholders.

ARA has developed a risk-based methodology and software package for use in real-time decision making for characterization of contaminated sites. Our approach, similar to the TRIAD system developed and promoted by the US EPA, centers on generating an optimal sequential sampling strategy as opposed to a predetermined sampling grid. This unique approach incorporates predictive tools, geostatistical location optimization, and Bayesian decision analysis.

Our experience includes more than 20 Probabilistic Risk Analyses (PRAs) of nuclear power plant facilities. We developed the Nuclear Regulatory Commission accepted TORMIS and TORSCOR codes for external event analyses of extreme winds (tornadoes, hurricanes, and extra-tropical cyclones) and their effects (direct wind pressure, wind-borne missile, and pressure drop).

ARA is recognized as a leader in wind engineering, risk management, and insurance loss analysis. ARA's wind engineering team has over 80 combined years' experience in modeling extreme winds, evaluating structure performance, collecting and analyzing property damage data, and performing wind and facility risk/loss assessments.

SIN 899-7: Geographic Information Systems (GIS). ARA is well versed in adapting GIS tools to environmental applications for natural resource planning, pollution analysis, regulatory compliance tracking, hydrology, and on-site contaminant characterization. ARA develops custom environmental solutions utilizing state-of-the-art GIS tools such as ESRI's ArcGIS, ArcIMS, and MapObjects, as well as AutoCAD, MapInfo, and Intergraph. Projects that exemplify these qualifications include the Regional Internet Banking Information System (RIBITS); the Coastal Sediment Budget Analysis System (SBAS), the Regional Morphology Analysis Package (RMAP); a survey of perchlorate contamination assessments on DoD installations for the Air Force Research Laboratory; a frost prediction methodology and maps of freezing degree days for the Vermont Agency of Transportation; and a stand-alone GIS application to retrieve both terrain and geotechnical information on a specific site for DTRA/TDTP.

RIBITS displays mitigation bank locations and service areas across Hydrologic Unit Code (HUC) watershed and political boundary maps. The mitigation-banking database allows USACE regulators multiple views of database information consisting of mitigation banking permits, credits, wetland permits, and ecological progress.

SBAS is used to create and analyze sediment budgets, modeling sediment deposition along shorelines and in harbors and reservoirs. It calculates and plots shoreline and sediment volume changes from collected station data as well as sediment budget cells, sinks, and fluxes on geo-referenced raster image and vector files.

The perchlorate survey of DoD installations provided maps and an associated database containing both current and potential soil and groundwater contamination. An analysis of the contamination aided the DoD and the Inter-Agency Perchlorate Steering Committee (IPSC) to determine how best to direct and manage site remediation funds.

The frost penetration of concrete has important implications for road construction in those states impacted by freezing weather. Experts at ARA designed a new methodology for determination of frost prediction and applied this model to the development of highly reliable state maps to be used by the Department of Transportation in determining road construction needs across the state.

The terrain template application developed for DTRA/TDTP allowed a user to select a site by clicking on a map or by entering geodetic coordinates. The user can retrieve information on the site terrain (slope, elevation and orientation) and geotechnical properties of geological materials at the site. The program can be applied to environmental site characterization and remediation, pollution analysis, and emergency preparedness planning.

SIN 899-8: Remediation Services. We provide a wide range of environmental remediation services from site characterization and field investigation to treatment of the hazardous waste, from long-term site monitoring to removal of unexploded ordnance. We have the expertise to perform environmental site characterizations using an innovative on-site approach combining site history, a wide variety of unique sampling tools, and "in-the-field" sample analysis that decreases

time and expense while increasing sampling accuracy. The US EPA calls this the "TRIAD" approach. Sample characterization is used to develop a risk analysis plan to prioritize treatment/remediation schedules in a remediation plan that achieves both regulatory and public approval and is scientifically defensible. The Lynn Haven project, the EPA SITE evaluation, and the perchlorate biodegradation projects illustrate ARA's ability to evaluate and apply remediation technologies beginning at laboratory test scale, through pilot scale, up to final full-scale testing, and commercial implementation. ARA has also developed and used on-site characterization studies, sensitive screening sensors for fuel contaminants, dense, non-aqueous phase liquids (DNAPL), and munitions. These sensors can be used with the CPT systems or they can be employed remotely, keeping personnel away from the danger of unexploded ordnance or exposure to toxic chemicals.

ARA's Organics Remediation Team provides engineers and scientists to support environmental research programs of the USACE-ERDC Vicksburg, investigating cleanup of organics contamination of soil, sediment, and groundwater. Current research includes chemical, biological, and electrokinetic degradation of munitions and metals. Past investigations used both biological and engineering methods to reduce toxic PAH and PCB contamination of sediments. The capabilities of the environmental team include chemical kinetics studies, radio-respirometry of contaminant degradation, liquid scintillation counting; gel permeation chromatography, high performance liquid and gas chromatography, and microbiological and toxicological studies.

ARA has experience in the design and operation of robotic systems for removal of unexploded ordnance (UXO) through government and commercial contracts both domestic and abroad. A robotic backhoe and gripper attachment allow remote clearance of UXO and other hazardous objects. An additional remote operations platform was designed and constructed to support the clearance operations at the Balboa West Bombing and Gunnery Range in Panama. Modifications to the remote operation system allowed removal and encasement of rocket motors containing hazardous solid propellants. ARA is developing the Force Protection Demining System (FPDS) for the U.S. Army Humanitarian Demining Group of the Night Vision and Electronic Sensors Directorate at Ft. Belvoir, VA. The FPDS will be a remotely-operated robotic system designed to detect and clear mined areas so they can be safely reoccupied.

ARA personnel have provided long-term monitoring of contaminated sites and landfill areas to the National Energy Technology Laboratory (Department of Energy) Savannah River Site, and the Air Force Research Laboratory. The sensor network established, and in operation currently, at the Savannah River site focuses on monitoring water quality parameters of pH, oxidation-reduction potential, conductivity, and temperature in the groundwater beneath a coal-pile run-off basin. This network uses solar batteries for field data logging and allows remote data acquisition through Internet connections. ARA personnel were also involved in a 2-year project to validate the quality of groundwater data provided by direct pushed wells as opposed to conventionally drilled wells. They were responsible for installation and maintenance of the wells, groundwater sampling, chemical analysis and statistical analysis of the results. In a support effort to a wetlands remediation project operated by the Air Force at Hill AFB in Utah and McGuire AFB in NJ, ARA performed a hydro-geological site assessment, phytoremediation expertise, and long-term monitoring to evaluate the efficacy of natural attenuation of chlorinated solvents discharged into the wetlands.

LOWEST PRICED MODEL NUMBER AND LOWEST UNIT PRICE

Labor Categories

All labor categories are approved for SINs 899-1, 899-7, and 899-8.
For a complete description, please refer to page 12.

The following lowest-cost rates are based on the junior-most level for each labor category.
For complete pricing, refer to the Labor Category Pricing section.

Labor Category	Hourly Rate
Professional Labor Categories	
Computer Programmer	$35.40
Computer Scientist	$55.02

Emergency Management Specialist	$41.96
Engineer I	$45.65
Staff Engineer I	$61.38
Senior Engineer I	$92.67
Principal Engineer I	$131.57
GIS Analyst	$52.51
Scientist I	$45.36
Staff Scientist I	$63.38
Senior Scientist I	$88.64
Principal Scientist I	$128.49
Labor Category	**Hourly Rate**
Technical Writer / Editor	$40.72
Training Program Developer	$39.39
Supporting Labor Categories	
Administrator I	$21.38
Database Analyst I	$38.12
Drafter I	$30.72
Field Support Specialist I	$29.93
GIS Technician I	$28.67
Network Administrator I	$31.86
Technician I	$31.83
Trade Service Support Specialist I	$28.22

Other Direct Costs

For pricing on ODCs, please refer to page 53.

Minimum Orders

The minimum order limit for this contract is $100.

Maximum Orders

The maximum order limit for SIN 899-1 is $1,000,000.

The maximum order limit for SIN 899-7 is $1,000,000.

The maximum order limit for SIN 899-8 is $1,000,000.

Geographic Coverage

ARA provides domestic and foreign delivery.

Locations

ARA provides services from the following Sector and Division offices

Corporate Headquarters

Corporate Headquarters **Executive Management Committee (EMC)**

Applied Research Associates, Inc.
4300 San Mateo Blvd., NE
Suite A-220
Albuquerque, NM 87110-1295
P (505) 881-8074, F (505) 883-3673

Robert Sues, Chief Executive Officer
Bill Dass, Deputy to CEO, Business Operations and Strategy
Frank Maestas, Chief Development Officer
Jeff Wilkins, Financial Strategy and Analysis
Lawrence Twisdale, Science Advisor and Director of Technical Quality

Automation and Geosciences Sector (AGSP) — David Timian, Sector Manager

New England Division - NED
John Haas, Division Manager
Laurie Swanson, Division Administrator
250 Beanville Road
Randolph, VT 05060
P 802-728-4588, F 802-728-7490

Vertek Division - VTK
Laurie McIntosh, Division Manager
Christi Bollman, Division Administrator
250 Beanville Road
Randolph, VT 05060
P 802-763-8348, F 802-728-9871

Lake Champlain Office (NED)
Brent Boerger, Manager
600 Blair Park, Unit #1, Suite 150
Williston, VT 05495
P 802-659-4194

Transportation Sector (TRSP) — Curt Beckemeyer, Sector Manager

Midwest Division - MWD
William Vavrik, Division Manager
Lori Donovan, Division Administrator
100 Trade Centre Drive, Suite 200
Champaign, IL 61820-7233
P 217-356-4500, F 217-356-3088

Gainesville, FL Office (IMD)
Alex Mraz, Manager
Materials Research Park
5007 NE 39th Ave.
Gainesville, FL 32609-2604
P 352-955-6343, F 352-955-6345

Atlantic City Office (TRSP)
Chris Sehr, Manager
2628 Fire Road, Suite 300
Egg Harbor Township, NJ 08234
P 609-569-1295, F 609-569-1296

Infrastructure Management Division - IMD
David Hein, Division Manager
5401 Eglinton Ave., West
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Toronto, Ontario Canada M9C 5K6
P 416-621-9555, F 416-621-4917

Round Rock, TX Office (MWD)
Harold Von Quintus, Manager
2003 North Mays Street
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Round Rock, TX 78664-9600
P 512-218-5088, F 512-218-8039

Harrisburg, PA Office (IMD)
John Hung, Manager
Julie Lechner, Administrator
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Camp Hill, PA 17011
P 717-975-3550, F 717-975-3557

Mid-Atlantic Division - MAD
Richard Speir, Division Manager
7184 Troy Hill Drive
Suite N
Elkridge, MD 21075-7056
P 410-540-9949, F 410-540-9288

Madison, WI Office (IMD)
Brian Aho, Manager
6314 Odana Road
Madison, WI 53719-1108
P 608-274-6409, F 608-374-6169

Vicksburg, MS Office (IMD)
Kevin Davidson, Manager
Barbara Foster, Administrator
112 Monument Place
Vicksburg, MS 39180-5160
P 601-629-6165, F 601-831-5401

Gainesville, FL Office, Special Projects (IMD)
Alex Mraz, Manager
5007 NE 39th Ave.
Gainesville, FL 32609-2604
P 352-955-6343, F 352-955-6345

Security Engineering & Applied Sciences Sector (SEAS) — Joseph Smith, Sector Manager

IntraRISK Division - RISK
William (Brother) Ratliff, Division Manager
Lisa West, Division Administrator
8537 Six Forks Rd.
Suite 600
Raleigh, NC 27615
P 919-582-3400, F 919-582-3401

Advanced Technology Office - ATO (SD)
Michael Trapp, Manager
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950 Isom Road
San Antonio, TX 78216
P 210-344-7644, F 210-344-7456

Silicon Valley, CA Office SVO (SWD)
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2672 Bayshore Parkway
Suite 1035
Mountain View, CA 94043-1014
P 650-625-8150, F 650-625-8145

Special Projects Office - SEASP
Joseph Smith, Sector Manager
Virginia Hoeppel, Kathy Pikul, Sector Administrator/Administrator
119 Monument Place
Vicksburg, MS 39180-5156
P 601-638-5401, F 601-634-0631

Rocky Mountain Division - RMD
Doug Meegan, Division Manager
Marcia Machesky, Division Administrator
7921 Shaffer Parkway
Littleton, CO 80127
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Southwest Division - SWD
Bryan Milligan/John Perry, Division Manager
Shannon Moreau, Division Administrator
4300 San Mateo Blvd. NE
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Southern Division - SD
Nancy Renfroe/Larry Bryant, Division Manager
Susan (Sue) Skipper, Division Administrator
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Jim Walton/Elmer Lueker, Manager
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Southwest Division - SWD
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Software, Systems, and Modeling Sector (SOSP) — Allen York, Sector Manager

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6320 Southwest Blvd.
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Fort Worth, TX 76109-3961
P 817-737-3131, F 817-732-6131

Ballston Office (CAD)
Ed Moas, Manager
801 North Quincy St.
Suite 600
Arlington, VA 22203
P 703-816-8886, F 703-816-8861

Nashua Office (SED)
John Incerti, Manager
39 Simon Street
Unit 15
Nashua, NH 03060
P 919-582-3468

Southeast Division - SED
David Hope, Robert Frank Division Managers
Anne Nelson Mitchell, Division Administrator
8537 Six Forks Rd.
Suite 600
Raleigh, NC 27615
P 919-582-3300, F 919-582-3301

Central Florida Division - CFD
John Mann, Division Manager
Ingrid Silva, Division Administrator
3452 Lake Lynda Drive
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P 407-823-9121, F 407-823-9138

Suffolk, VA Office (SED)
Dave Pyle, Manager
1540 Breezeport Way
Suite 100
Suffolk, VA 23435
P 757-638-4900, F 757-638-4964

Nuclear Environments and System Assessments Group - NESA (SED)
John Incerti, Manager
735 State Street
Suite 516
Santa Barbara, CA 93101
P 805-962-4810, F 805-962-4806

Offut AFB, NE Office (CAD)
901 SAC Blvd.
Suite 3D9
Offut AFB, NE 68113
P 402-232-9095

Corporate Development Sector

Shock Physics Division - SPD
Robert Couch, Division Manager
Debra Lopez, Division Administrator
3751 F. Wyoming Blvd, Bldg 20749
Kirtland Air Force Base, NM 87117
P 505-846-0487, F 505-846-6430

Technical Operations (SOSP) — David Oakley, Sector Manager

Technical Operations
David Oakley, Sector Managers
8537 Six Forks Rd.
Suite 600
Raleigh, NC 27615
P 919-582-2300, F 919-582-3301

Klein Associates Division - KAD
Tom Miller, Division Manager
Terry Blessing, Division Administrator
1750 Commerce Center Blvd. North
Fairborn, OH 45324-6232
P 937-873-8166, F 937-873-8258

Mark Perusse (CAD)
Mark Perusse, Manager
PO Box 2441
Alamogordo, NM 88311
P 505-439-5230

Capital Area Division - CAD
Ed Moas, Division Manager
Shelly Thompson, Division Administrator
2760 Eisenhower Avenue
Suite 308
Alexandria, VA 22314-4576
P 703-329-0200, F 703-329-0204

Herndon, VA Office (CAD)
Chris French, Manager
2235 Monroe St.
Herndon, VA 20171
P 703-735-4669

Broadspere Group (CAD)
Lori Mussleman, Manager
109 East Main Street
Suite 610
Norfolk, VA 23510
P 757-965-3517, F 757-965-3561

Joint Training and Experimentation Center - JTEC (KAD)
Brian Beyer, Manager
Terry Blessing, Administrator
Building 105
Guernsey, WY 82214
P 307-836-7835, F 307-836-7837

Kent Beck (CAD)
Kent Beck, Manager
905 Spirit Ave.
Suite 117
Whiteman AFB, MO 65305
P 805-962-4810

DTRA (CAD)
Attn: DTRA/OP-CSAB Daniel Schwarz
8725 John J. Kingman Road,
Stop 6201
Ft. Belvoir, VA 22060-6201
P 805-962-4810

Gulf Coast Sector (GCS) — Glen McDonald, Sector Manager

Special Projects Office - GCS
Glen McDonald, Sector Manager
Lisa Kirk, Sector Administrator
430 West 5th St., Suite 700
Panama City, FL 32401-6357
P 850-914-3188, F 850-914-3189

Emerald Coast Division - ECD
David Jerome, Michael McGlockton, Managers
Teresa Fought, Division Administrator
956 W. John Sims Parkway
Niceville, FL 32578-1823
P 850-678-5222, F 850-678-6997

North Chesapeake Office – NCO (ECD)
Clare Fahnstock, Manager
4694 Millennium Dr.
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Belcamp, MD 21017
P 410-272-8862, F 410-272-7498

Engineering Science Division - ESD
Michael Rochefort, Division Manager
Linda Devoy, Division Administrator
421 Oak Ave.
Panama City, FL 32401
P 850-767-0100, F 850-767-0101

Hawaii Office
John Ahern, Manager
421 Olohana St.
#701
Honolulu, HI 96815-2135
P 808-449-6776, F 808-282-6448

Vulnerability Lethality Office
John Williams, Manager
956 John Sims Parkway
Niceville, FL 32578-1823

North Florida Division - NFD
Chuck Red, Edward Copolla, Division Manager
Mrs. Jeannie Ryan, Division Administrator
430 West 5th St.
Suite 700
Panama City, FL 32401-6357
P 850-914-3188, F 850-914-3189

Lackland AFB, TX Office
Lionel Harris, Manager
HQ AFSFC/SFPS
1517 Billy Mitchell Blvd.
Lackland AFB, TX 78236-0119
P 210-925-7023, F 210-925-5403

Crystal City Operations – CCO (NFD)
Lew Goldberg, Manager
Cynthia Hamm, Administrator
1235 South Clark Street
Suite 1110
Arlington, VA 22202
P 703-412-9425, F 703-412-9426

STATEMENT OF NET PRICE

Prices shown herein are net (discounts deducted).

QUANTITY DISCOUNTS

ARA offers a 1% discount for all orders equal to or over $250,000.00.

PROMPT PAYMENT TERMS

ARA offers a ¼% discount for payment within 10 days.

GOVERNMENT PURCHASE CARDS

ARA accepts Government purchase cards for all orders.

TIME OF DELIVERY

As negotiated between the agency and ARA.

F.O.B. POINT

Destination.

ORDERING ADDRESS

Applied Research Associates, Inc
4300 San Mateo Blvd NE
Suite A-220

Albuquerque, NM 87110
Phone: 505-881-8074 Fax: 505-883-3673

ORDERING PROCEDURES

For supplies and services, the ordering procedures, information on Blanket Purchase Agreements (BPAs), and a sample BPA can be found at the GSA/FSS Schedule homepage (www.fss.gsa.gov/schedules).

PAYMENT ADDRESS

Applied Research Associates, Inc
4300 San Mateo Blvd NE
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Albuquerque, NM 87110
Phone: 505-881-8074 Fax: 505-883-3673

WARRANTY

Work performed by ARA will be of professional quality and will conform to generally accepted quality standards of the industry.

DUNS NUMBER

097967608

CENTRAL CONTRACTOR REGISTRATION (CCR) DATABASE / SYSTEM FOR AWARD MANAGEMENT (SAM) DATABASE

ARA is registered in the CCR database.

Notification regarding registration in System for Award Management (SAM) database: **Registered**

LABOR CATEGORY DESCRIPTIONS

The labor categories and Other Direct Costs identified on the following pages apply to all proposed SINs:

SIN 899-1: Environmental Planning Services & Documentation
SIN 899-7: Geographic Information Systems (GIS)
SIN 899-8: Remediation Services

Note: For all labor categories, a bachelor's degree is equivalent to 4 years of related experience. A master's degree is equivalent to a bachelor's degree plus 2 years of experience. A doctorate degree is equivalent to a bachelor's degree plus 6 years of experience.

PROFESSIONAL LABOR CATEGORIES

Job Title	Computer Programmer
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 0
General Characteristics: Computer Programmers test and maintain programs that computers must follow to perform their functions. They also test logical structures for solving problems by computer. They are knowledgeable of one or more programming languages.	
Typical Responsibilities: Responsibilities include, but are not limited to, maintaining programs according to the specifications determined primarily by computer software engineers and system analysts. They may code instructions in a conventional programming language, such as COBOL; an artificial intelligence language, such as Prolog; or one of the most advanced object-oriented languages such as Java, C++, or Smalltalk. Different programming languages are used depending on the purpose of the program. Computer Programmers assist on environmental projects by performing tasks such as data acquisition systems development; network design and implementation; sensor design and utilization; relational database design; computer aided engineering; scientific software application development; and web-based scientific environmental data tracking applications.	

Job Title	Staff Computer Programmer
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 5
General Characteristics: Staff Computer Programmers test and maintain programs that computers must follow to perform their functions. They support the design and testing of logical structures for solving problems by computer. They are knowledgeable of two or more programming languages.	
Typical Responsibilities: Responsibilities include, but are not limited to, testing and maintaining programs according to the specifications determined primarily by computer software engineers and system analysts. After the design process is complete they will convert that design into a logical series of instructions that the computer can follow. They then code these instructions in a conventional programming language, such as COBOL; an artificial intelligence language, such as Prolog; or one of the most advanced object-oriented languages such as Java, C++, or Smalltalk. Different programming languages are used depending on the purpose of the program. They may review and analyze programming systems including encoding, testing, debugging, and documenting. Staff Computer Programmers assist on environmental projects by performing tasks such as data acquisition systems development; network design and implementation; sensor design and utilization; relational database design; computer aided engineering; scientific software application development; and web-based scientific environmental data tracking applications.	

Job Title	Senior Computer Programmer
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 10
General Characteristics: Senior Computer Programmers write, test, and maintain programs that computers must follow to perform their functions. They also conceive, design, and test logical structures for solving problems by computer. They are knowledgeable of three or more programming languages.	
Typical Responsibilities: Responsibilities include, but are not limited to, writing programs according to the specifications determined primarily by computer software engineers and system analysts. After the design process is complete they convert that design into a logical series of instructions that the computer can follow. They then code these instructions in a conventional programming language, such as COBOL; an artificial intelligence language, such as Prolog; or one of the most advanced object-oriented languages such as Java, C++, or Smalltalk. Different programming languages are used depending on the purpose of the program. They may review, analyze, and modify programming systems including encoding, testing, debugging, and documenting. Senior Computer Programmers assist on environmental projects by performing tasks such as data acquisition systems development; network design and implementation; sensor design and utilization; relational database design; computer aided engineering; scientific software application development; and web-based scientific environmental data tracking applications.	

Job Title	Principal Computer Programmer
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 15
General Characteristics: Principal Computer Programmers write, test, and maintain programs that computers must follow to perform their functions. They also conceive, design, and test logical structures for solving problems by computer. They are knowledgeable of three or more programming languages.	
Typical Responsibilities: Responsibilities include, but are not limited to, writing programs according to the specifications determined primarily by computer software engineers and system analysts. After the design process is complete they convert that design into a logical series of instructions that the computer can follow. They then code these instructions in a conventional programming language, such as COBOL; an artificial intelligence language, such as Prolog; or one of the most advanced object-oriented languages such as Java, C++, or Smalltalk. Different programming languages are used depending on the purpose of the program. They may review, analyze, and modify programming systems including encoding, testing, debugging, and documenting. They may also direct less experienced Computer Programmers in testing and/or maintaining programs. They may be responsible for program planning and support coordination. Principal Computer Programmers assist on environmental projects by performing tasks such as data acquisition systems development; network design and implementation; sensor design and utilization; relational database design; computer aided engineering; scientific software application development; and web-based scientific environmental data tracking applications.	

Job Title	Computer Scientist
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 0
General Characteristics: Computer Scientists work as theorists and/or researchers under the direction of a more experienced Computer Scientist. Their jobs are distinguished by the theoretical expertise and innovation they apply to complex problems and the creation or application of new technology.	
Typical Responsibilities: Responsibilities include, but are not limited to, providing support in developing specialized languages for information technologies. They may also support the design of programming tools and knowledge-based systems. Computer Scientists work as integral members of a team of environmental engineers and scientists to deliver total solutions to environmental problems. Computer Scientists are often trained in environmental disciplines. Computer Scientists assist on environmental projects by performing tasks such as data acquisition systems development; network design and implementation; sensor design and utilization; relational database design; computer aided engineering; scientific software application development; and web-based scientific environmental data tracking applications.	

Job Title	Staff Computer Scientist
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 5
General Characteristics: Staff Computer Scientists work as theorists, researchers, or inventors under the direction of a more experienced Computer Scientist, and in some cases under their own direction. Their jobs are distinguished by the higher level of theoretical expertise and innovation they apply to complex problems and the creation or application of new technology.	
Typical Responsibilities: Responsibilities include, but are not limited to, providing support in applying theory and developing specialized languages for information technologies. They also support the design of programming tools and knowledge-based systems. Staff Computer Scientists work as integral members of a team of environmental engineers and scientists to deliver total solutions to environmental problems. Computer Scientists are often trained in environmental disciplines. Staff Computer Scientists assist on environmental projects by performing tasks such as data acquisition systems development; network design and implementation; sensor design and utilization; relational database design; computer aided engineering; scientific software application development; and web-based scientific environmental data tracking applications.	

Job Title	Senior Computer Scientist
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 10
General Characteristics: Senior Computer Scientists work as theorists, researchers, or inventors Their jobs are distinguished by the higher level of theoretical expertise and innovation they apply to complex problems and the creation or application of new technology.	
Typical Responsibilities: Responsibilities include, but are not limited to, applying theory, developing specialized languages for information technologies, and/or designing programming tools and knowledge-based systems. They are responsible for their own work as well as directing and/or reviewing the work of less experienced Computer Scientists. Senior Computer Scientists work as integral members of a team of environmental engineers and scientists to deliver total solutions to environmental problems. Computer Scientists are often trained in environmental disciplines. Senior Computer Scientists assist on environmental projects by performing tasks such as data acquisition systems development; network design and implementation; sensor design and utilization; relational database design; computer aided engineering; scientific software application development; and web-based scientific environmental data tracking applications.	

Job Title	Principal Computer Scientist
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 15
General Characteristics: Principal Computer Scientists work as theorists, researchers, or inventors. Their jobs are distinguished by the higher level of theoretical expertise and innovation they apply to complex problems and the creation or application of new technology. They have acquired experience in directing and coordinating others.	
Typical Responsibilities: Responsibilities include, but are not limited to, applying theory, developing specialized languages for information technologies, and/or designing programming tools and knowledge-based systems. They are responsible for their own work as well as directing, reviewing, and coordinating the work of less experienced Computer Scientists. They may be responsible for program planning and support coordination. Principal Computer Scientists work as integral members of a team of environmental engineers and scientists to deliver total solutions to environmental problems. Computer Scientists are often trained in environmental disciplines. Principal Computer Scientists assist on environmental projects by performing tasks such as data acquisition systems development; network design and implementation; sensor design and utilization; relational database design; computer aided engineering; scientific software application development; and web-based scientific environmental data tracking applications.	

Job Title	Emergency Management Specialist
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 0
General Characteristics: Emergency Management Specialists provide support and research in emergency management development, planning, and training.	
Typical Responsibilities: Responsibilities include, but are not limited to, coordinating disaster response or crisis management activities, providing disaster preparedness training, and preparing emergency plans and procedures.	

Job Title	Staff Emergency Management Specialist
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 5
General Characteristics: Emergency Management Specialists provide support and research in emergency management development, planning, and training.	
Typical Responsibilities: Responsibilities include, but are not limited to, coordinating disaster response or crisis management activities, providing disaster preparedness training, and preparing emergency plans and procedures. May be responsible for supervising and/or training those with less experience.	

Job Title	Senior Emergency Management Specialist
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 10
General Characteristics: Emergency Management Specialists provide support and research in emergency management development, planning, and training.	
Typical Responsibilities: Responsibilities include, but are not limited to, coordinating disaster response or crisis management activities, providing disaster preparedness training, and preparing emergency plans and procedures. May be responsible for supervising and/or training those with less experience.	

Job Title	Principal Emergency Management Specialist
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 15
General Characteristics: Emergency Management Specialists provide support and research in emergency management development, planning, and training.	
Typical Responsibilities: Responsibilities include, but are not limited to, coordinating disaster response or crisis management activities, providing disaster preparedness training, and preparing emergency plans and procedures. May be responsible for supervising and/or training those with less experience.	

Job Title	Engineer I
Education: Bachelor's Degree or Equivalent	**Minimum Years of Experience:** 0
General Characteristics: This is the entry level for professional work. Performs assignments designed to develop professional knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of engineering alternatives. Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to, reading and using prescribed methods, performing specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes.	

Job Title	Engineer II
Education: Bachelor's Degree or Equivalent	**Minimum Years of Experience:** 1
General Characteristics: This is the entry level for professional work. Performs assignments designed to develop professional knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of engineering alternatives. Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to, reading and using prescribed methods, performing specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes.	

Job Title	Engineer III
Education: Master's Degree or Equivalent	**Minimum Years of Experience:** 0
General Characteristics: This is the entry level for professional work. Performs assignments designed to develop professional knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of engineering alternatives. Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to, reading and using prescribed methods, performing specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Engineer IV
Education: Master's Degree or Equivalent	**Minimum Years of Experience:** 1
General Characteristics: This is the entry level for professional work. Performs assignments designed to develop professional knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of engineering alternatives. Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to, reading and using prescribed methods, performing specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Engineer V
Education: Master's Degree or Equivalent	**Minimum Years of Experience:** 2
General Characteristics: This is the entry level for professional work. Performs assignments designed to develop professional knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of engineering alternatives. Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to, reading and using prescribed methods, performing specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Staff Engineer I
Education: Master's Degree or Equivalent	**Minimum Years of Experience:** 3
General Characteristics: As a fully competent engineer in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience. Staff Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to planning, scheduling, conducting, and /or coordinating detailed phases of the engineering work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practice but may include a variety of complex features such as conflicting design requirements, unsuitability of conventional materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of and practices of related specialties.	

Job Title	Staff Engineer II
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 0
General Characteristics: As a fully competent engineer in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience. Staff Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to planning, scheduling, conducting, and /or coordinating detailed phases of the engineering work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practice but may include a variety of complex features such as conflicting design requirements, unsuitability of conventional materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of and practices of related specialties.	

Job Title	Staff Engineer III
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 1
General Characteristics: As a fully competent engineer in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience. Staff Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to planning, scheduling, conducting, and /or coordinating detailed phases of the engineering work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practice but may include a variety of complex features such as conflicting design requirements, unsuitability of conventional materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of and practices of related specialties. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Staff Engineer IV
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 2
General Characteristics: As a fully competent engineer in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience. Staff Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to planning, scheduling, conducting, and /or coordinating detailed phases of the engineering work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practice but may include a variety of complex features such as conflicting design requirements, unsuitability of conventional materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of and practices of related specialties. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Staff Engineer V
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 3
General Characteristics: As a fully competent engineer in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience. Staff Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to planning, scheduling, conducting, and /or coordinating detailed phases of the engineering work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practice but may include a variety of complex features such as conflicting design requirements, unsuitability of conventional materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of and practices of related specialties. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior Engineer I
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 4
General Characteristics: Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope and selection of problems for investigation and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience. Senior Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: One or more of the following: 1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire engineering program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders. 2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies, are difficult to define, require unconventional or novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. 3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior Engineer II
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 5
General Characteristics: Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope and selection of problems for investigation and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience. Senior Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: One or more of the following: 1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire engineering program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders. 2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies, are difficult to define, require unconventional or novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. 3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior Engineer III
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 6
General Characteristics: Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope and selection of problems for investigation and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience. Senior Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: One or more of the following: 1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire engineering program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders. 2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies, are difficult to define, require unconventional or novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. 3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior Engineer IV
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 7
General Characteristics: Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope and selection of problems for investigation and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience. Senior Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: One or more of the following: 1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire engineering program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders. 2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies, are difficult to define, require unconventional or novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. 3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior Engineer V
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 8
General Characteristics: Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope and selection of problems for investigation and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience. Senior Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: One or more of the following: 1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire engineering program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders. 2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies, are difficult to define, require unconventional or novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. 3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal Engineer I
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 9
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive engineering programs and activities of outstanding novelty and importance. Principal Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified engineering program, or b) the entire engineering program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis, so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal Engineer II
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 10
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive engineering programs and activities of outstanding novelty and importance. Principal Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified engineering program, or b) the entire engineering program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis, so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal Engineer III
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 11
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive engineering programs and activities of outstanding novelty and importance. Principal Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified engineering program, or b) the entire engineering program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis, so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal Engineer IV
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 12
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive engineering programs and activities of outstanding novelty and importance. Principal Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified engineering program, or b) the entire engineering program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis, so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal Engineer V
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 13
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive engineering programs and activities of outstanding novelty and importance. Principal Engineers can have different areas of discipline such as aerospace, civil, chemical, computer hardware, computer software, contingency support, disaster management, electrical, environmental, EOD, industrial, mechanical, pavements, structural, transportation, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified engineering program, or b) the entire engineering program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis, so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	GIS Analyst
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 0
General Characteristics: Familiar with one or more GIS packages. Experience in one or more programming languages (ex. macro/C++/Visual Basic). Knowledge of relational databases. Good analytical/problem solving skills. Basic knowledge of cartography/geography.	
Typical Responsibilities: Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced GIS Analyst. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Staff GIS Analyst
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 2
General Characteristics: Strong GIS skills with two or more GIS packages. Proficient in one or more programming languages. Proficient with Oracle or related relational database management skills. Experienced at analytical problem solving. Basic knowledge of cartography/geography.	
Typical Responsibilities: Responsibilities include, but are not limited to: Plans, schedules, conducts, or coordinates detailed phases of GIS analysis work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional GIS analysis but may include a variety of complex features. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of practices of related specialties. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior GIS Analyst
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 4
General Characteristics: Strong GIS skills with two or more GIS packages. Strong Macro/C/C++/Visual Basic programming skills. Strong Oracle or related relational database management skills. Good knowledge of cartography/geography. Good understanding of math and statistical analysis.	
Typical Responsibilities: One or more of the following: 1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire scientific program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders with at least one in a position comparable to Staff GIS Analyst. 2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies; are difficult to define; require unconventional or novel approaches; and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. 3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal GIS Analyst
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 8
General Characteristics: Strong GIS skills with two or more GIS packages. Strong Macro/C/C++/Visual Basic programming skills. Strong Oracle or related relational database management skills. Good knowledge of cartography/geography. Good understanding of math and statistical analysis.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified program, or b) the entire scientific program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, and include problems of extraordinary difficulty that often have resisted solution and consist of several segments requiring subordinate supervisors. Responsible for deciding the kind and extent of and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. Typically responsible for projects greater than $50,000 in value. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Scientist I
Education: Bachelor's Degree or Equivalent	**Minimum Years of Experience:** 0
General Characteristics: This is the entry level for professional work. Performs assignments designed to develop professional knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related scientific tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of scientific alternatives. Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced scientist. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes.	

Job Title	Scientist II
Education: Bachelor's Degree or Equivalent	**Minimum Years of Experience:** 1
General Characteristics: This is the entry level for professional work. Performs assignments designed to develop professional knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related scientific tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of scientific alternatives. Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced scientist. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes.	

Job Title	Scientist III
Education: Master's Degree or Equivalent	**Minimum Years of Experience:** 0
General Characteristics: This is the entry level for professional work. Performs assignments designed to develop professional knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related scientific tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of scientific alternatives. Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced scientist. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Scientist IV
Education: Master's Degree or Equivalent	**Minimum Years of Experience:** 1
General Characteristics: This is the entry level for professional work. Performs assignments designed to develop professional knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related scientific tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of scientific alternatives. Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced scientist. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Scientist V
Education: Master's Degree or Equivalent	**Minimum Years of Experience:** 2
General Characteristics: This is the entry level for professional work. Performs assignments designed to develop professional knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related scientific tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of scientific alternatives. Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced scientist. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Staff Scientist I
Education: Master's Degree or Equivalent	**Minimum Years of Experience:** 3
General Characteristics: As a fully competent scientist in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience. Staff Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: Plans, schedules, conducts, or coordinates detailed phases of the scientific work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional scientific practice but may include a variety of complex features. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of practices of related specialties.	

Job Title	Staff Scientist II
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 0
General Characteristics: As a fully competent scientist in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience. Staff Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: Plans, schedules, conducts, or coordinates detailed phases of the scientific work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional scientific practice but may include a variety of complex features. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of practices of related specialties.	

Job Title	Staff Scientist III
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 1
General Characteristics: As a fully competent scientist in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience. Staff Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: Plans, schedules, conducts, or coordinates detailed phases of the scientific work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional scientific practice but may include a variety of complex features. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of practices of related specialties. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Staff Scientist IV
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 2
General Characteristics: As a fully competent scientist in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience. Staff Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: Plans, schedules, conducts, or coordinates detailed phases of the scientific work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional scientific practice but may include a variety of complex features. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of practices of related specialties. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Staff Scientist V
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 3
General Characteristics: As a fully competent scientist in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience. Staff Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: Plans, schedules, conducts, or coordinates detailed phases of the scientific work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional scientific practice but may include a variety of complex features. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of practices of related specialties. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior Scientist I
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 4
General Characteristics: Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops scientific projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope, and selection of problems for investigation and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience. Senior Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: One or more of the following: 1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire scientific program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders with at least one in a position comparable to level V. 2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies; are difficult to define; require unconventional or novel approaches; and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. 3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior Scientist II
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 5
General Characteristics: Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops scientific projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope, and selection of problems for investigation and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience. Senior Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: One or more of the following: 1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire scientific program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders with at least one in a position comparable to level V. 2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies; are difficult to define; require unconventional or novel approaches; and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. 3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior Scientist III
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 6
General Characteristics: Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops scientific projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope, and selection of problems for investigation and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience. Senior Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: One or more of the following: 1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire scientific program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders with at least one in a position comparable to level V. 2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies; are difficult to define; require unconventional or novel approaches; and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. 3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior Scientist IV
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 7
General Characteristics: Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops scientific projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope, and selection of problems for investigation and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience. Senior Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: One or more of the following: 1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire scientific program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders with at least one in a position comparable to level V. 2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies; are difficult to define; require unconventional or novel approaches; and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. 3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Senior Scientist V
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 8

General Characteristics:
Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops scientific projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope, and selection of problems for investigation and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience. Senior Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.

Typical Responsibilities:
One or more of the following:
1) in a supervisory capacity a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or b) is responsible for the entire scientific program of an organization when the program is of limited complexity and scope. The extent of his or her responsibilities generally requires a few (3 to 5) subordinate supervisors or team leaders with at least one in a position comparable to level V.
2) As individual researcher or worker, conceives, plans and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies; are difficult to define; require unconventional or novel approaches; and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems.
3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e. subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments. May be responsible for supervising and/or training those with less experience and/or education.

Job Title	Principal Scientist I
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 9
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive scientific and related activities of the company. Negotiates critical and controversial issues with top level scientists and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive scientific programs and activities of outstanding novelty and importance. Principal Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified program, or b) the entire scientific program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, and include problems of extraordinary difficulty that often have resisted solution and consist of several segments requiring subordinate supervisors. Responsible for deciding the kind and extent of and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal Scientist II
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 10
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive scientific and related activities of the company. Negotiates critical and controversial issues with top level scientists and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive scientific programs and activities of outstanding novelty and importance. Principal Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified program, or b) the entire scientific program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, and include problems of extraordinary difficulty that often have resisted solution and consist of several segments requiring subordinate supervisors. Responsible for deciding the kind and extent of and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal Scientist III
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 11
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive scientific and related activities of the company. Negotiates critical and controversial issues with top level scientists and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive scientific programs and activities of outstanding novelty and importance. Principal Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified program, or b) the entire scientific program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, and include problems of extraordinary difficulty that often have resisted solution and consist of several segments requiring subordinate supervisors. Responsible for deciding the kind and extent of and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal Scientist IV
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 12
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive scientific and related activities of the company. Negotiates critical and controversial issues with top level scientists and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive scientific programs and activities of outstanding novelty and importance. Principal Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified program, or b) the entire scientific program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, and include problems of extraordinary difficulty that often have resisted solution and consist of several segments requiring subordinate supervisors. Responsible for deciding the kind and extent of and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal Scientist V
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 13
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive scientific and related activities of the company. Negotiates critical and controversial issues with top level scientists and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive scientific programs and activities of outstanding novelty and importance. Principal Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified program, or b) the entire scientific program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, and include problems of extraordinary difficulty that often have resisted solution and consist of several segments requiring subordinate supervisors. Responsible for deciding the kind and extent of and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Principal Scientist VI
Education: Doctorate Degree or Equivalent	**Minimum Years of Experience:** 14
General Characteristics: Make decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive scientific and related activities of the company. Negotiates critical and controversial issues with top level scientists and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing and guiding extensive scientific programs and activities of outstanding novelty and importance. Principal Scientists can have different areas of discipline such as biological, chemical, environmental, geological, microbiological, and physical, etc.	
Typical Responsibilities: One or both of the following: 1) In a supervisory capacity is responsible for a) an important segment of a very extensive and highly diversified program, or b) the entire scientific program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, and include problems of extraordinary difficulty that often have resisted solution and consist of several segments requiring subordinate supervisors. Responsible for deciding the kind and extent of and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. 2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance. May be responsible for supervising and/or training those with less experience and/or education.	

Job Title	Technical Writer/Editor
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 0
General Characteristics: Those involved in multimedia production may develop and design, concepts and/or review and edit material that is to appear in printed or digital media. They work primarily in computer and data processing services.	
Typical Responsibilities: Responsibilities include, but are not limited to, deciding how best to present information for written instructions, procedures, reports, minutes, and other technical documentation so it is clear, concise, organized, and understandable. They may write and/or edit information required in presentation layouts.	

Job Title	Staff Technical Writer/Editor
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 5
General Characteristics: Those involved in multimedia production may develop and design, concepts and/or review and edit material that is to appear in printed or digital media. They work primarily in computer and data processing services.	
Typical Responsibilities: Responsibilities include, but are not limited to, deciding how best to present information for written instructions, procedures, reports, minutes, and other technical documentation so it is clear, concise, organized, and understandable. They may write and/or edit information required in presentation layouts. May be responsible for supervising and/or training those with less experience.	

Job Title	Senior Technical Writer/Editor
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 10
General Characteristics: Those involved in multimedia production may develop and design, concepts and/or review and edit material that is to appear in printed or digital media. They work primarily in computer and data processing services.	
Typical Responsibilities: Responsibilities include, but are not limited to, deciding how best to present information for written instructions, procedures, reports, minutes, and other technical documentation so it is clear, concise, organized, and understandable. They may write and/or edit information required in presentation layouts. May be responsible for supervising and/or training those with less experience.	

Job Title	Principal Technical Writer/Editor
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 15
General Characteristics: Those involved in multimedia production may develop and design, concepts and/or review and edit material that is to appear in printed or digital media. They work primarily in computer and data processing services.	
Typical Responsibilities: Responsibilities include, but are not limited to, deciding how best to present information for written instructions, procedures, reports, minutes, and other technical documentation so it is clear, concise, organized, and understandable. They may write and/or edit information required in presentation layouts. May be responsible for supervising and/or training those with less experience.	

Job Title	Training Program Developer
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 0
General Characteristics: Those involved in training program development may develop and design concepts and/or review and edit material that is to appear in printed or digital media used for training purposes. They work primarily in computer and data processing services.	
Typical Responsibilities: Responsibilities include, but are not limited to, developing outlines, narratives, and/or storyboards from source materials, identifying graphics, videos, photographs and/or narrations required for training program development, and communicating these ideas and concepts to computer programmers. Responsibilities may also include researching topic areas for source materials, quality control testing, and student testing program development.	

Job Title	Staff Training Program Developer
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 5
General Characteristics: Those involved in training program development may develop and design concepts and/or review and edit material that is to appear in printed or digital media used for training purposes. They work primarily in computer and data processing services.	
Typical Responsibilities: Responsibilities include, but are not limited to, developing outlines, narratives, and/or storyboards from source materials, identifying graphics, videos, photographs and/or narrations required for training program development, and communicating these ideas and concepts to computer programmers. Responsibilities may also include researching topic areas for source materials, quality control testing, and student testing program development. May be responsible for supervising and/or training those with less experience.	

Job Title	Senior Training Program Developer
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 10
General Characteristics: Those involved in training program development may develop and design concepts and/or review and edit material that is to appear in printed or digital media used for training purposes. They work primarily in computer and data processing services.	
Typical Responsibilities: Responsibilities include, but are not limited to, developing outlines, narratives, and/or storyboards from source materials, identifying graphics, videos, photographs and/or narrations required for training program development, and communicating these ideas and concepts to computer programmers. Responsibilities may also include researching topic areas for source materials, quality control testing, and student testing program development. May be responsible for supervising and/or training those with less experience.	

Job Title	Principal Training Program Developer
Education: Bachelor's degree or equivalent	**Minimum Years of Experience:** 15
General Characteristics: Those involved in training program development may develop and design concepts and/or review and edit material that is to appear in printed or digital media used for training purposes. They work primarily in computer and data processing services.	
Typical Responsibilities: Responsibilities include, but are not limited to, developing outlines, narratives, and/or storyboards from source materials, identifying graphics, videos, photographs and/or narrations required for training program development, and communicating these ideas and concepts to computer programmers. Responsibilities may also include researching topic areas for source materials, quality control testing, and student testing program development. May be responsible for supervising and/or training those with less experience.	

SUPPORTING LABOR CATEGORIES

Job Title	Administrator I
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 0
General Characteristics: Provides general administrative support to technical and managerial personnel.	
Typical Responsibilities: Typical responsibilities and duties may include, but are not limited to, operation of various office equipment, project administration and support, documentation planning and support, mail services, records and data input services, and support of various financial areas including accounts payable, invoicing, administration of benefits, leasing agreements, payroll, overhead summaries and reports, etc.	

Job Title	Administrator II
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 5
General Characteristics: Provides general administrative support to technical and managerial personnel.	
Typical Responsibilities: Typical responsibilities and duties may include, but are not limited to, operation of various office equipment, project administration and support, documentation planning and support, mail services, records and data input services, and support of various financial areas including accounts payable, invoicing, administration of benefits, leasing agreements, payroll, overhead summaries and reports, etc. May be responsible for supervising and/or training those with less experience.	

Job Title	Administrator III
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 10
General Characteristics: Provides general administrative support to technical and managerial personnel.	
Typical Responsibilities: Typical responsibilities and duties may include, but are not limited to, operation of various office equipment, project administration and support, documentation planning and support, mail services, records and data input services, and support of various financial areas including accounts payable, invoicing, administration of benefits, leasing agreements, payroll, overhead summaries and reports, etc. May be responsible for supervising and/or training those with less experience.	

Job Title	Administrator IV
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 15
General Characteristics: Provides general administrative support to technical and managerial personnel.	
Typical Responsibilities: Typical responsibilities and duties may include, but are not limited to, operation of various office equipment, project administration and support, documentation planning and support, mail services, records and data input services, and support of various financial areas including accounts payable, invoicing, administration of benefits, leasing agreements, payroll, overhead summaries and reports, etc. May be responsible for supervising and/or training those with less experience.	

Job Title	Database Analyst I
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 1
General Characteristics: Database analysts work with database management systems software and determine ways to organize and store data.	
Typical Responsibilities: Responsibilities include, but are not limited to, determining user requirements, setting up computer databases, and testing and coordinating changes. It is the responsibility of a database analyst to ensure performance, understand the platform the database runs on, and add new users. Because they also may design and implement system security, database analysts may often plan and coordinate security measures.	

Job Title	Database Analyst II
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 6
General Characteristics: Database Analysts work with database management systems software and determine ways to organize and store data.	
Typical Responsibilities: Responsibilities include, but are not limited to, determining user requirements, setting up computer databases, and testing and coordinating changes. It is the responsibility of a Database Analyst to ensure performance, understand the platform the database runs on, and add new users. Because they also may design and implement system security, Database Analysts may often plan and coordinate security measures. May be responsible for directing those with less experience.	

Job Title	Database Analyst III
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 15
General Characteristics: Database Analysts work with database management systems software and determine ways to organize and store data.	
Typical Responsibilities: Responsibilities include, but are not limited to, determining user requirements, setting up computer databases, and testing and coordinating changes. It is the responsibility of a Database Analyst to ensure performance, understand the platform the database runs on, and add new users. Because they also may design and implement system security, Database Analysts may often plan and coordinate security measures. May be responsible for directing those with less experience.	

Job Title	Drafter I
Education: Diploma, GED, or equivalent, proper licensure/certification	**Minimum Years of Experience:** 1
General Characteristics: Drafters prepare technical drawings and plans used by engineers and/or scientists to build everything from manufactured products to structures. To accomplish their goals, Drafters may use traditional drafting devices or computer aided drafting (CAD) systems.	
Typical Responsibilities: Responsibilities may include, but are not limited to, providing visual guidelines by showing the technical details of the products and structures and specifying dimensions, materials to be used, and procedures and processes to be followed. They can fill in technical details, using drawings, rough sketches, specifications, codes, and calculations previously made by engineers, surveyors, architects, or scientists.	

Job Title	Drafter II
Education: Diploma, GED, or equivalent, proper licensure/certification	**Minimum Years of Experience:** 6
General Characteristics: Drafters prepare technical drawings and plans used by engineers and/or scientists to build everything from manufactured products to structures. To accomplish their goals, Drafters may use traditional drafting devices or computer aided drafting (CAD) systems.	
Typical Responsibilities: Responsibilities may include, but are not limited to, providing visual guidelines by showing the technical details of the products and structures and specifying dimensions, materials to be used, and procedures and processes to be followed. They can fill in technical details, using drawings, rough sketches, specifications, codes, and calculations previously made by engineers, surveyors, architects, or scientists. May be responsible for directing those with less experience.	

Job Title	Drafter III
Education: Diploma, GED, or equivalent, proper licensure/certification	**Minimum Years of Experience:** 15
General Characteristics: Drafters prepare technical drawings and plans used by engineers and/or scientists to build everything from manufactured products to structures. To accomplish their goals, Drafters may use traditional drafting devices or computer aided drafting (CAD) systems.	
Typical Responsibilities: Responsibilities may include, but are not limited to, providing visual guidelines by showing the technical details of the products and structures and specifying dimensions, materials to be used, and procedures and processes to be followed. They can fill in technical details, using drawings, rough sketches, specifications, codes, and calculations previously made by engineers, surveyors, architects, or scientists. May be responsible for directing those with less experience.	

Job Title	Field Support Specialist I
Education: Diploma, GED, or equivalent, proper licensure/certification	**Minimum Years of Experience:** 1
General Characteristics: Field Support Specialists provide support with heavy equipment during field tests, exercises and/or demonstrations.	
Typical Responsibilities: Responsibilities may include, but are not limited to, operating heavy equipment such as cranes, bulldozers, trucks, and/or other construction equipment. May include setting up and inspecting equipment, troubleshooting, making adjustments, and performing repairs when needed.	

Job Title	Field Support Specialist II
Education: Diploma, GED, or equivalent, proper licensure/certification	**Minimum Years of Experience:** 6
General Characteristics: Field Support Specialists provide support with heavy equipment during field tests, exercises and/or demonstrations.	
Typical Responsibilities: Responsibilities may include, but are not limited to, operating heavy equipment such as cranes, bulldozers, trucks, and/or other construction equipment. May include setting up and inspecting equipment, troubleshooting, making adjustments, and performing repairs when needed. May be responsible for directing those with less experience.	

Job Title	Field Support Specialist III
Education: Diploma, GED, or equivalent, proper licensure/certification	**Minimum Years of Experience:** 15
General Characteristics: Field Support Specialists provide support with heavy equipment during field tests, exercises and/or demonstrations.	
Typical Responsibilities: Responsibilities may include, but are not limited to, operating heavy equipment such as cranes, bulldozers, trucks, and/or other construction equipment. May include setting up and inspecting equipment, troubleshooting, making adjustments, and performing repairs when needed. May be responsible for directing those with less experience.	

Job Title	GIS Technician I
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 0
General Characteristics: High school diploma with college preparatory courses emphasizing science and/or mathematics, foreign languages, computer science. Literate in written and spoken English language.	
Typical Responsibilities: Responsibilities include, but are not limited to, data entry for GIS programs (with supervision).	

Job Title	GIS Technician II
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 2
General Characteristics: High school diploma with college preparatory courses emphasizing science and/or mathematics, foreign languages, computer science. Literate in written and spoken English language. Two or more years of experience in GIS, mapping, surveying, or CAD.	
Typical Responsibilities: Responsibilities include, but are not limited to, data entry for more than one GIS program (with supervision).	

Job Title	GIS Technician III
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 5
General Characteristics: High school diploma with college preparatory courses emphasizing science and/or mathematics, foreign languages, computer science. Literate in written and spoken English language. Two or more years of experience in GIS, mapping, surveying, or CAD. Associates degree in GIS, surveying, CAD, or related discipline preferred, with certification in GIS or a related field.	
Typical Responsibilities: Responsibilities include, but are not limited to, data entry for more than one GIS program (with supervision). Completes assigned portions of a project on time and with documentation. May supervise one GIS Technician with less experience.	

Job Title	GIS Technician IV
Education: Diploma, GED, or equivalent	**Minimum Years of Experience:** 9
General Characteristics: High school diploma with college preparatory courses emphasizing science and/or mathematics, foreign languages, computer science. Literate in written and spoken English language. Two or more years of experience in GIS, mapping, surveying, or CAD. Associates degree in GIS, surveying, CAD, or related discipline preferred, with certification in GIS or a related field.	
Typical Responsibilities: Responsibilities include, but are not limited to, data entry for more than one GIS program (with supervision). Supervises a team portion of a project on time and with documentation. May supervise several GIS Technicians with less experience.	

Job Title	Network Administrator I
Education: Technical degree or equivalent	**Minimum Years of Experience:** 1
General Characteristics: Network Administrators provide technical assistance and support for network systems.	
Typical Responsibilities: Responsibilities include, but are not limited to, designing, installing, and supporting LAN, WAN, network segment, Internet, or Intranet systems; providing day-to-day onsite administrative support for software users; maintaining network hardware and software; analyzing problems; and monitoring the network to ensure availability to system users. Network Administrators also may plan, coordinate, and implement network security measures.	

Job Title	Network Administrator II
Education: Technical degree or equivalent	**Minimum Years of Experience:** 6
General Characteristics: Network Administrators provide technical assistance and support for network systems.	
Typical Responsibilities: Responsibilities include, but are not limited to, designing, installing, and supporting LAN, WAN, network segment, Internet, or Intranet systems; providing day-to-day onsite administrative support for software users; maintaining network hardware and software; analyzing problems; and monitoring the network to ensure availability to system users. Network Administrators also may plan, coordinate, and implement network security measures. May be responsible for supervising and/or training those with less experience.	

Job Title	Network Administrator III
Education: Technical degree or equivalent	**Minimum Years of Experience:** 15
General Characteristics: Network Administrators provide technical assistance and support for network systems.	
Typical Responsibilities: Responsibilities include, but are not limited to, designing, installing, and supporting LAN, WAN, network segment, Internet, or Intranet systems; providing day-to-day onsite administrative support for software users; maintaining network hardware and software; analyzing problems; and monitoring the network to ensure availability to system users. Network Administrators also may plan, coordinate, and implement network security measures. May be responsible for supervising and/or training those with less experience.	

Job Title	Technician I
Education: High School Diploma or equivalent	**Minimum Years of Experience:** 0
General Characteristics: Provides technical support as directed by technical personnel by using principles and theories of engineering, science, and/or mathematics. Technicians can have different areas of discipline such as CADD, engineering, electronics, electrical power production, EOD, fire, HVAC, instrument, materials, pavements, robotics, soils, structures, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to, supporting technical personnel while under supervision, operating and maintaining standard equipment, and recording data. They must keep detailed logs of all their work-related activities.	

Job Title	Technician II
Education: High School Diploma or equivalent	**Minimum Years of Experience:** 5
General Characteristics: Provides technical support as directed by technical personnel by using principles and theories of engineering, science, and/or mathematics. Technicians can have different areas of discipline such as CADD, engineering, electronics, electrical power production, EOD, fire, HVAC, instrument, materials, pavements, robotics, soils, structures, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to, supporting technical personnel while under supervision, operating and maintaining standard equipment, and recording data. They must keep detailed logs of all their work-related activities. May be responsible for supervising and/or training those with less experience.	

Job Title	Technician III
Education: High School Diploma or equivalent	**Minimum Years of Experience:** 10
General Characteristics: Provides technical support as directed by technical personnel by using principles and theories of engineering, science, and/or mathematics. Technicians can have different areas of discipline such as CADD, engineering, electronics, electrical power production, EOD, fire, HVAC, instrument, materials, pavements, robotics, soils, structures, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to, supporting technical personnel while under supervision, operating and maintaining standard equipment, and recording data. They must keep detailed logs of all their work-related activities. May be responsible for supervising and/or training those with less experience.	

Job Title	Technician IV
Education: High School Diploma or equivalent	**Minimum Years of Experience:** 15
General Characteristics: Provides technical support as directed by technical personnel by using principles and theories of engineering, science, and/or mathematics. Technicians can have different areas of discipline such as CADD, engineering, electronics, electrical power production, EOD, fire, HVAC, instrument, materials, pavements, robotics, soils, structures, etc.	
Typical Responsibilities: Responsibilities include, but are not limited to, supporting technical personnel while under supervision, operating and maintaining standard equipment, and recording data. They must keep detailed logs of all their work-related activities. May be responsible for supervising and/or training those with less experience.	

Job Title	Trade Service Support Specialist I
Education: Diploma, GED, or equivalent, proper licensure/certification	**Minimum Years of Experience:** 1
General Characteristics: Trade Service Support Specialists provide support in the design or construction of test or demonstration equipment using skills in trade services.	
Typical Responsibilities: Responsibilities may include, but are not limited to, using trade skills such as welding, electrical, carpentry, glass-blowing, sheet-metal work, and/or machinist work in the design, construction and/or repair of needed equipment. May include setting up and inspecting equipment, troubleshooting, making adjustments, and performing repairs of specialized equipment.	

Job Title	Trade Service Support Specialist II
Education: Diploma, GED, or equivalent, proper licensure/certification	**Minimum Years of Experience:** 6
General Characteristics: Trade Service Support Specialists provide support in the design or construction of test or demonstration equipment using skills in trade services.	
Typical Responsibilities: Responsibilities may include, but are not limited to, using trade skills such as welding, electrical, carpentry, glass-blowing, sheet-metal work, and/or machinist work in the design, construction and/or repair of needed equipment. May include setting up and inspecting equipment, troubleshooting, making adjustments, and performing repairs of specialized equipment. May be responsible for supervising and/or training those with less experience.	

Job Title	Trade Service Support Specialist III
Education: Diploma, GED, or equivalent, proper licensure/certification	**Minimum Years of Experience:** 15
General Characteristics: Trade Service Support Specialists provide support in the design or construction of test or demonstration equipment using skills in trade services.	
Typical Responsibilities: Responsibilities may include, but are not limited to, using trade skills such as welding, electrical, carpentry, glass-blowing, sheet-metal work, and/or machinist work in the design, construction and/or repair of needed equipment. May include setting up and inspecting equipment, troubleshooting, making adjustments, and performing repairs of specialized equipment. May be responsible for supervising and/or training those with less experience.	

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LABOR CATEGORY PRICING

	Year 1 2009	Year 2 2010	Year 3 2011	Year 4 2012	Year 5 2013
Staff Computer Programmer	$53.79	$55.83	$57.96	$60.16	$62.44
Senior Computer Programmer	$71.19	$73.89	$76.70	$79.62	$82.64
Principal Computer Programmer	$94.74	$98.34	$102.08	$105.96	$109.99
Computer Scientist	$55.08	$57.17	$59.35	$61.60	$63.94
Staff Computer Scientist	$79.05	$82.05	$85.17	$88.41	$91.77
Senior Computer Scientist	$105.26	$109.26	$113.41	$117.72	$122.20
Principal Computer Scientist	$141.24	$146.61	$152.18	$157.96	$163.97
Emergency Management Specialist	$50.56	$52.48	$54.48	$56.55	$58.69
Staff Emergency Management Specialist	$62.06	$64.41	$66.86	$69.40	$72.04
Senior Emergency Management Specialist	$83.78	$86.97	$90.27	$93.70	$97.26
Principal Emergency Management Specialist	$124.94	$129.69	$134.62	$139.73	$145.04
Engineer I	$55.01	$57.10	$59.27	$61.52	$63.86
Engineer II	$60.39	$62.68	$65.07	$67.54	$70.11
Engineer III	$54.67	$56.74	$58.90	$61.14	$63.46
Engineer IV	$58.82	$61.05	$63.37	$65.78	$68.28
Engineer V	$62.53	$64.90	$67.37	$69.93	$72.59
Staff Engineer I	$63.80	$66.22	$68.74	$71.35	$74.06
Staff Engineer II	$68.34	$70.94	$73.63	$76.43	$79.33
Staff Engineer III	$75.09	$77.95	$80.91	$83.98	$87.17
Staff Engineer IV	$80.82	$83.89	$87.08	$90.39	$93.82
Staff Engineer V	$87.08	$90.39	$93.82	$97.39	$101.09
Senior Engineer I	$94.00	$97.57	$101.28	$105.12	$109.12
Senior Engineer II	$101.61	$105.47	$109.48	$113.64	$117.96
Senior Engineer III	$108.50	$112.62	$116.90	$121.34	$125.96
Senior Engineer IV	$114.45	$118.80	$123.31	$128.00	$132.86
Senior Engineer V	$123.03	$127.71	$132.56	$137.60	$142.83
Principal Engineer I	$135.02	$140.15	$145.47	$151.00	$156.74
Principal Engineer II	$151.01	$156.75	$162.71	$168.89	$175.31
Principal Engineer III	$175.90	$182.58	$189.52	$196.72	$204.20
Principal Engineer IV	$197.93	$205.45	$213.26	$221.36	$229.77
Principal Engineer V	$235.96	$244.93	$254.23	$263.89	$273.92
GIS Analyst	$63.28	$65.69	$68.19	$70.78	$73.47
Staff GIS Analyst	$88.61	$91.98	$95.47	$99.10	$102.87
Senior GIS Analyst	$124.02	$128.73	$133.62	$138.70	$143.97
Principal GIS Analyst	$243.50	$252.75	$262.36	$272.33	$282.68
Scientist I	$46.58	$48.35	$50.19	$52.10	$54.08
Scientist II	$48.35	$50.19	$52.10	$54.08	$56.13
Scientist III	$53.56	$55.59	$57.71	$59.90	$62.17
Scientist IV	$57.60	$59.79	$62.06	$64.42	$66.87
Scientist V	$61.97	$64.33	$66.77	$69.31	$71.94
Staff Scientist I	$64.63	$67.09	$69.63	$72.28	$75.03
Staff Scientist II	$69.75	$72.40	$75.15	$78.01	$80.97
Staff Scientist III	$74.59	$77.43	$80.37	$83.42	$86.59

Staff Scientist IV	$80.35	$83.40	$86.57	$89.86	$93.28
	Year 1 2009	**Year 2 2010**	**Year 3 2011**	**Year 4 2012**	**Year 5 2013**
Staff Scientist V	$86.19	$89.47	$92.87	$96.39	$100.06
Senior Scientist I	$90.70	$94.15	$97.73	$101.44	$105.30
Senior Scientist II	$96.32	$99.98	$103.78	$107.72	$111.82
Senior Scientist III	$105.34	$109.35	$113.50	$117.82	$122.29
Senior Scientist IV	$112.10	$116.36	$120.78	$125.37	$130.13
Senior Scientist V	$122.98	$127.65	$132.50	$137.53	$142.76
Principal Scientist I	$131.56	$136.56	$141.74	$147.13	$152.72
Principal Scientist II	$142.60	$148.02	$153.64	$159.48	$165.54
Principal Scientist III	$158.49	$164.51	$170.76	$177.25	$183.99
Principal Scientist IV	$174.62	$181.26	$188.15	$195.30	$202.72
Principal Scientist V	$191.29	$198.56	$206.10	$213.93	$222.06
Principal Scientist VI	$244.65	$253.95	$263.60	$273.61	$284.01
Senior Technical Writer/Editor	$105.30	$109.30	$113.45	$117.77	$122.24
Principal Technical Writer/Editor	$148.07	$153.70	$159.54	$165.60	$171.89
Training Program Developer	$47.46	$49.26	$51.14	$53.08	$55.10
Staff Training Program Developer	$72.67	$75.43	$78.30	$81.27	$84.36
Senior Training Program Developer	$118.65	$123.16	$127.84	$132.70	$137.74
Principal Training Program Developer	$137.63	$142.86	$148.29	$153.92	$159.77
Administrator II	$35.04	$36.37	$37.75	$39.19	$40.68
Administrator III	$45.34	$47.06	$48.85	$50.70	$52.63
Administrator IV	$61.75	$64.10	$66.53	$69.06	$71.68
Database Analyst I	$41.52	$43.10	$44.73	$46.43	$48.20
Database Analyst II	$68.05	$70.64	$73.32	$76.11	$79.00
Database Analyst III	$79.85	$82.89	$86.04	$89.31	$92.70
Field Support Specialist I	$36.06	$37.43	$38.85	$40.33	$41.86
Field Support Specialist II	$38.83	$40.31	$41.84	$43.43	$45.08
Field Support Specialist III	$64.82	$67.29	$69.84	$72.50	$75.25
Network Administrator I	$28.73	$29.82	$30.96	$32.13	$33.35
Network Administrator II	$58.07	$60.28	$62.57	$64.94	$67.41
Network Administrator III	$83.92	$87.11	$90.42	$93.86	$97.42
Technician I	$30.58	$31.75	$32.95	$34.21	$35.51
Technician II	$44.65	$46.34	$48.10	$49.93	$51.83
Technician III	$64.13	$66.57	$69.10	$71.72	$74.45
Technician IV	$88.60	$91.97	$95.46	$99.09	$102.85
Trade Service Support Specialist I	$34.00	$35.29	$36.63	$38.03	$39.47
Trade Service Support Specialist II	$49.53	$51.41	$53.37	$55.39	$57.50
Trade Service Support Specialist III	$62.53	$64.90	$67.37	$69.93	$72.59

SERVICE CONTRACT ACT - SCA

The labor categories that fall under the requirements of the Service Contract Act (SCA)(i.e., non-exempt labor categories) are identified in the matrix below. All prices for these labor categories meet or exceed the requirements in the SCA Wage Determination identified below. The matrix and narrative are incorporated into this contract and must also be included in the Contractor's electronic price list on GSA Advantage.

SCA Eligible Contract Labor Category	SCA Equivalent Code- Title	WD#
Administrator II	01111-General Clerk I	05-2297
Administrator III	01112-General Clerk II	05-2297
Administrator IV	01113-General Clerk III	05-2297
Technician I	11210-Laborer	05-2297
Technician II	30082-Engineering Technician II	05-2297
Technician III	30084-Engineering Technician IV	05-2297
Technician IV	30086-Engineering Technician VI	05-2297

The Service Contract Act (SCA) is applicable to this contract and it includes SCA applicable labor categories. The prices for the indicated SCA labor categories are based on the U.S. Department of Labor Wage Determination Number(s) identified in the matrix. The prices offered are based on the preponderance of where work is performed and should the contractor perform in an area with lower SCA rates, resulting in lower wages being paid, the task order prices will be discounted accordingly.

OTHER DIRECT COSTS

For the following direct costs, ARA offers the same 1% volume discount and ¼% prompt payment discount as is applied to labor categories.

DIRECT MATERIALS

ARA provides Direct Materials applicable to all SINs as follows. Need for these items is determined by project type and duration.

Direct Materials	Quantity	Price
Fluid Resistant Lab Coat	ea	$34.00
Face Shield	ea	$15.40
Safety Glasses	ea	$6.17
Safety Goggles	ea	$5.60
Steel Toed Boots	pair	$139.99
Safety Prescription Glasses	ea	$234.00
Safety Prescription Glasses, Bifocal	ea	$270.00
Respirator, Full Face	ea	$199.00
Respirator, Half Mask	ea	$38.60

LABORATORY USAGE FEES

ARA accumulates costs related to its laboratories in a cost center. Facility cost center rates are based on actual percentages of lease, insurance, and utility cost for each facility based on the square feet of space occupied by that facility and the projected use rate for that facility. Each month the amount of lab time used on each contract is accumulated for each project supported. Each hour of lab time is adjusted to the actual average cost per hour. Several ARA locations have laboratory facilities that are utilized in environmental tasks. Each of these locations/facilities has its own rates.

Laboratory	Price	Per
Environmental Lab (New England Division)	$100.00	day
Geo Technical Lab (New England Division)	$100.00	day
Microbial Biodegration Lab (Downtown Panama City)	$25.00	day
Analytical lab (Downtown Panama City)	$32.00	day
Fabrication / Demo Lab (Downtown Panama City)	$23.00	day

Environmental Laboratory. Environmental analyses and field equipment calibrations are performed in this laboratory. Instrumentation includes water quality devices (e.g., pH, ORP, turbidity, etc.), high performance liquid chromatography, gas chromatography, colorimetry, fluorescence, and Raman. General environmental laboratory equipment (hoods, balances, pipettes, pumps, stands, etc.) is also available to support projects.

Geotechnical Laboratory. This laboratory supports a full range of modern soil and rock tests. Standard geotechnical tests range from gravimetric water content and density to stereo microscopic inspection. A large hydraulic press supports rock strength tests (high pressure triaxial testing) at confining pressures up to 400 Mpa (58,000 psi) with full servo control. The lab also performs resilient modulus tests for pavement engineering and multi-phase material characterizations.

Analytical Laboratory. Analysis of environmental samples. Environmental samples include contaminated groundwater, contaminated soils, industrial wastewater, and solid and liquid intermediates and products from lab, bench, and full-scale environmental treatment processes. The lab is used for sample preparation, standard preparation, and sample analysis by GC, GC-MS, HPLC, IC, UV-vis, and other conventional wet chemistry analytical methods

Microbial Biodegration Laboratory. This Lab is used to develop, maintain, and characterize biological cultures used in environmental process for the biodegradation of harmful substances that are regulated in the environment. Also used to conduct biodegradation treatability studies, optimize and develop biodegradation processes, and to operate various types and configurations of biodegradation and physical/chemical treatment systems and equipment.

Fabrication/Demo Laboratory. Used to build and test pilot-scale treatment systems for contaminated groundwater and industrial wastewater. Treatment systems include biological, catalytic, thermal, supercritical, and other physical/chemical treatment technology.

EQUIPMENT USAGE

Lab fees are subject to adjustment depending on the amount and type of equipment used. Equipment cost center rates are based on equipment depreciation, equipment maintenance and supplies, labor to maintain equipment, and projected use rate for that equipment. The major equipment items for the environmental service center are:

Equipment Usage Fees	Price	Per
DPC Field Equipment	$762.70	week
Cone Penetrometer Truck	$3,000.00	day
Cone Penetrometer Truck Mobilization/Demobilization	$1,750.00	day
Bioreactor	$33.00	day
Ion Chromatograph	$41.00	day
Gas Chromatograph	$28.00	day
HPLC	$50.00	day
GC / MS	$62.00	day
Support Equipment	$35.00	day
Bio Trailer	$50.00*	day

*Does not include mobilization/ demobilization costs.

DPC Field Equipment. Trimble Pro XR GPS Unit: Durable (field-grade), highly accurate (sub-meter) GPS unit. Primarily used for surveying, occasionally used for navigation / comparison. Includes Windows CE device for interfacing and imagery overlays. ESRI ArcINFO Software Suite: Full GIS - Cartographic software package for the creation, interpretation, and delivery of maps and GIS database systems.

Cone Penetrometer Truck. The cone penetrometer (CPT) is used for below-ground geotechnical and environmental investigations. Standard piezocone CPT testing logs soil behavior (strength) and type (classification) vs depth below ground surface. Additional sensors added to the cone provide real-time sensing of other soil parameters (volumetric moisture, pH, resistivity, etc.) and environmental contaminants (e.g., gasoline and other fuels, chlorinated hydrocarbon solvents, etc.) in situ.

Cone Penetrometer Mobilization/Demobilization. Loading and transporting the Cone Penetrometer Truck incurs additional costs.

Bench Bioreactors. 2.5 to 6.0-liter bioreactor systems with agitation, flow control, temperature control, and pH control used to conduct treatability studies, optimize performance parameters, and develop design bases for scale up to larger systems.

Ion Chromatograph (IC). Used to identify and quantify inorganic ionic species such as nitrate (NO3-), sulfate, phosphate, and perchlorate in process or environmental samples.

Gas Chromatograph (GC). Used for identification and quantification of organic fuels and solvents in treatment process samples or environmental samples.

High Pressure Liquid Chromatograph (HPLC). Use to identify and quantify low concentrations of organic contaminations in process or environmental samples with emphasis on energetic and explosive compounds such as TNT, HMX, and RDX.

Gas Chromatograph with Mass Spec Detector (GC/MS). Capable of performing EPA and Standard Method analyses for low concentrations of volatile, semi-volatile, and non-volatile organics in groundwater.

Support Equipment. This is general laboratory equipment that is used in direct support of sample storage, preparation, analysis; and reactor operation, testing, and analysis. Equipment includes: analytical balances, drying ovens and furnaces, desiccators, de-ionized water purification systems, refrigerators and freezers, hoods, centrifuges, benches, temperature baths, incubators, autoclaves, glove-boxes, and bench-top calibration and monitoring equipment.

Transportable Bioreactor System (Trailer). 275-gallon bioreactor system with agitation, flow control, temperature control, and pH control used to conduct field demonstrations and develop design bases for full-scale systems. The transportable system is contained in an 8' x 20' climate-controlled trailer.

PRODUCTION SUPPLIES AND SERVICES

In the ARA accounting system, these project costs are separately collected and charged directly to the contract. This methodology is reviewed by DCAA.

Production / Reproduction Costs	Quantity	Price
Photocopying	1 page	$0.10
20lb paper (print & copy) (500 sh per ream)	10 reams	$32.33
24lb paper (reports)	1 ream	$7.98
2" binder	1 ea	$5.63
3" binder	1 ea	$6.57
heavy card stock (250 cards per pkg)	1 pkg	$9.79
5/16" plastic comb bindings	1 box	$3.32
1/2" plastic comb bindings	1 box	$3.87
clear report covers	1 box	$36.07
overhead slides (50 sheets per box)	1 box	$34.29

COMPUTER FEES

Services	Price Per Hour
Applications — Base Level Computing	$2.50
Applications — Computationally Intense	$5.00

HEALTH CARE SCREENING SERVICES

ARA bills for reimbursement of employee health screening services as follows.

Note: The ARA Safety Plan for work with hazardous substances requires these tests to monitor personnel working on extended projects with hazardous materials. Annual follow-up tests are required to verify that the hazardous substance work has not caused any adverse health consequences. These tests are project-required and therefore a direct cost.

Health Screening Services	Price Per Test
Standard Tests	
Physical	$50.00
Audiometric heating test	$30.00
Certified audiologist — threshold	$72.00
Pulmonary function	$36.00
Chem 12	$24.00
CBC w / diff	$25.00
U / A w / micro	$9.00
PCB screen (serum)	$150.00
Pesticide/insecticide screen (urine, blood, & plasma)	$225.00
Naphthalene screen (serum)	$74.00
Blood Drawing	$12.50
Heavy metal urine (arsenic, cadmium, copper, mercury, lead, zinc)	$125.00
Trichloroacetic acid — serum	$100.00
Eye exam (separate)	$54.00
Additional Tests	
Chest X-ray	$50.00
EKG	$38.00
Treadmill	$275.00
Heavy metal blood (arsenic, copper, lead, zinc)	$125.00
DOT Medical Physical Examination	$60.00

TELEPHONE CHARGES

ARA bills for reimbursement of contract-related long distance telephone charges at 10¢ per minute.

ADDITIONAL FEES

ARA applies 12% for General and Administrative (G&A) costs, and 2.6% for Purchasing and Subcontracts (P&S) costs related to Other Direct Costs. The 12% G&A and 2.6% Purchasing and Subcontracts Burden are the current DCAA recommended rates.

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