Air Resource SPECIALISTS

Environmental Consulting Services Catalog & Price List

Supplement No. 6

GSA Contract GS-10F-0046U

Contract Period November 20, 2017— November 19, 2027

GENERAL SERVICES ADMINISTRATION
Federal Acquisition Service
Authorized Federal Supply Schedule FSS Price List

Online 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 GSAAdvantage.gov.




Multiple Award Schedule (MAS)
Professional Services - Environmental Services
PSC - F999
Business Size - Small

POC

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Prices Shown Herein are Net (discount deducted). Price list current as of Modification # PA-0043 effective April 12, 2024. For more information on ordering go to the following website: https://www.gsa.gov/schedules.

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Overview

Air Resource Specialists, Inc. (ARS) has been a leader in the field of air quality for over 40 years, providing professional consulting and support services in a wide variety of air quality-related disciplines. Areas of special expertise include: criteria pollutant, visibility and meteorology monitoring and auditing; data analysis; database management; environmental compliance; air quality and visibility modeling; and research, instrument, and policy analysis services. Staff scientists also contribute to air quality science by performing research, presenting papers, and participating in national, regional, and state committees and forums. Our staff maintains close, cooperative, and professional working relationships with its clients. Our strengths and experience are more broadly outlined on the ARS' Web site at http://www.air-resource.com.

Areas of special expertise include:

- Criteria pollutant, visibility, meteorology, and air toxic monitoring
- Data analysis
- Research, audit, and instrument services
- Air quality and visibility modeling
- Environmental compliance services

Ordering Contract Services

Air Resource Specialists, Inc. (ARS) was awarded the third option period renewal to GSA contract number GS-10F-0046U effective November 20, 2022. Initiated in 2007, Contract GS-10F-0046U provides for orders to be placed as Fixed-Price, Labor-Hour, or Time-and-Materials Task/Delivery Orders using the labor categories and ceiling rates defined in this catalog (see Price List).

In accordance with GSA Order OGP 4800.2I, this contract is available for use by:

- All federal government agencies and specified organizations
- Executive agencies
- Other federal agencies
- Mixed-ownership government corporations, as identified in the government Corporation Control Act
- The District of Columbia
- Government cost-reimbursement contractors, authorized in writing by a federal agency pursuant to 48 CFR 51.1, and other activities and organizations authorized by statute or regulation to use GSA as a source of supply
- Tribes and tribal organizations, as provided in Section 102(13) of Pub. L. 103-413
- ARS is also authorized to sell their services to state and local government entities via the Disaster Recovery Purchasing Program DISAST RECOV (RC Specialty Item Numbers).

For more information on ordering from Multiple Award Schedules, select the *Buy* button on the GSA Schedules page. You may also consult with your internal contracting support personnel or the GSA point of contact noted below.

GSA Contract Information	
Contract Number	GS-10F-0046U
Schedule	MAS
Contract Duration	November 20, 2017 – November 19, 2027
Business Size	Small Business
ARS Point of Contact for Orders and Services	
GSA Contracting Administrator Point of Contact	Genevieve Lariviere (glariviere@air-resource.com)
GSA Negotiator Point of Contact/President	Jessica Ward (jward@air-resource.com)
GSA Government Point of Contact	See the e-Library Contracting Officer denoted in our GSA eLibrary Contractor Profile

Customer Information	
1a. Special Item Numbers (SINs)	541620 – Environmental Consulting Services OLM – Order Level Materials
1b. Lowest priced model number/unit price	N/A
1c. Hourly Rates	Commercial Job Titles, Experience and Functional Responsibilities on page 9
2. Maximum Order	$1,000,000.00
3. Minimum Order	$100.00
4. Geographic Coverage (delivery area)	Domestic only
5. Point of Production	Fort Collins, Colorado (Larimer County)
6. Discount from list prices or statement of net price	Government Net Prices (discounts deducted)
7. Quantity Discounts	None
8. Prompt Payment Terms	Net 30 Days Information for Ordering Offices: Prompt payment terms cannot be negotiated out of the contractual agreement in exchange for other concessions
9. Foreign Items (list items by country of origin)	None
10a. Time of Delivery	To be negotiated with ordering agency for each Task/Delivery Order
10b. Expedited Delivery	To be negotiated with ordering agency for each Task/Delivery Order
10c. Overnight and 2-Day Delivery	To be negotiated with ordering agency for each Task/Delivery Order
10d. Urgent Requirements	The “Urgent Requirements” clause of this contract is applicable. Ordering agency can contact the contractor’s representative to expedite delivery.
11. F.O.B Points	Destination

Customer Information (continued)	
12a. Ordering Address	Air Resource Specialists, Inc. Attn: Jessica Ward (Negotiator/Point of Contact) 1901 Sharp Point Drive, Suite F Fort Collins, Colorado 80525-4429 environmentalss@air-resource.com or jward@air-resource.com
12b. Ordering Procedures	See Federal Acquisition Regulation (FAR) 8.405-3
13. Payment Address	Air Resource Specialists, Inc. Attn: Accounts Receivable 1901 Sharp Point Drive, Suite F Fort Collins, Colorado 80525-4429 accounting@air-resource.com
14. Warranty Provision	N/A
15. Export Packing Charges	N/A
16. Terms and conditions of rental, maintenance, and repair (if applicable)	To be negotiated with ordering agency for each Task/Delivery Order
17. Terms and conditions of installation (if applicable)	To be negotiated with ordering agency for each Task/Delivery Order
18. Terms and conditions of repair parts indicating date of parts price lists and any discounts from list prices (if applicable)	N/A
19. Terms and conditions for any other services (if applicable)	N/A
20. List of service and distribution points (if applicable)	N/A
21. List of participating dealers (if applicable)	N/A
22. Preventative maintenance (if applicable)	N/A
23a. Environmental attributes, (e.g., recycled content, energy efficiency, and/or reduced pollutants)	N/A
23b. Section 508 compliance for Information and Communication Technology (ICT)	N/A
24. Unique Entity Identifier (UEI)	DQM8R4XG8R86
25. System for Award Management (SAM) database	Air Resource Specialists, Inc. is registered

Typical ARS Services Associated with SIN 541620

541620 Environmental Consulting Services *

- Air Quality, Visibility and Meteorology Monitoring (Regulatory and Research)
- Air Quality and Meteorology Auditing (Performance, Systems, PEP and NPAP)
- Environmental Assessments and Impact Statements under NEPA
- Air Modeling
- Advisory Services in Support of Agency Environmental Programs
- Environmental Regulation Development
- Environmental Compliance Audits
- Permitting
- Spill Prevention/Control and Countermeasure Plans
- Community Right-to Know Act Reporting

* Brief descriptions of ARS' experience related to SIN 541320 follow on pages 14-21.

Satisfied ARS Clients

- **Department of Interior**
  - National Park Service
  - Bureau of Land Management
- **Department of Agriculture**
  - U.S. Forest Service
- **Environmental Protection Agency**
- **Department of Defense**
- **Department of Energy**
  - National Laboratories

Services Contract Labor Standards (SCLS) Awarded Labor Categories

The Service Contract Labor Standards, formerly the Service Contract Act (SCA), apply to this contract and it includes SCLS applicable labor categories. Labor categories and fixed price services marked with a (**) in this pricelist are based on the U.S. Department of Labor Wage Determination Number(s) identified in the SCLS/SCA matrix. The prices awarded are in line with the geographic scope of the contract (i.e., nationwide).

SCLS Awarded Labor Categories

November 20, 2017, through November 19, 2027

Labor Category Non-Exempt	Labor Category and Occupational Code	Wage Determination Number
Field Technician	General Maintenance Worker - 23370	15-5421
Electronics Technician Maintenance I	Electronics Technician Maintenance I - 23181	15-5421
Laboratory Technician	Laboratory Technician - 30210	15-5421
Senior Data Analyst (Environmental Tech)	Environmental Technician - 30090	15-5421
Data Analyst	Engineering Technician II - 30082	15-5421
Data Technician	Engineering Technician I - 30081	15-5421
Computer Operator III	Computer Operator III - 14043	15-5421
Computer Operator II	Computer Operator II - 14042	15-5421
Computer Operator I	Computer Operator I - 14041	15-5421
Secretary I	Secretary I - 01311	15-5421

Price Lists by Labor Category

The table below reflects GSA Contract GS-10F-0046U Years 17 – 20 discounted GSA labor rates, including the Industrial Funding Fee of 0.75%.

Price Lists by Labor Category

November 20, 2023 through November 19, 2027

Labor Category	Option Period 3 Hourly GSA Rates			
	Year 17 11/20/2023 – 11/19/2024	Year 18 11/20/2024 – 11/19/2025	Year 19 11/20/2025 – 11/19/2026	Year 20 1/20/2026 – 11/19/2027
Senior Scientist/Program Manager	$261.60	$269.19	$276.99	$285.03
Sr. Project Manager	$239.18	$246.12	$253.25	$260.60
Project Manager	$171.91	$176.89	$182.02	$187.30
Sr. Programmer/GIS Specialist	$179.38	$184.59	$189.94	$195.45
QA Manager/Technical Writer	$156.96	$161.51	$166.20	$171.02
Technical Field Manager	$149.49	$153.82	$158.28	$162.87
Programmer/Data Modeler	$149.49	$153.82	$158.28	$162.87
Sr. Field Specialist	$127.06	$130.75	$134.54	$138.44
Field Specialist	$112.11	$115.37	$118.71	$122.15
Field Technician**	$97.17	$99.98	$102.88	$105.87
Sr. Project Scientist	$112.11	$115.37	$118.71	$122.15
Project Scientist	$97.17	$99.98	$102.88	$105.87
Electronics Technician Maintenance I**	$112.11	$115.37	$118.71	$122.15
Laboratory Technician**	$97.17	$99.98	$102.88	$105.87
Sr. Data Analyst (Environmental Tech)**	$127.06	$130.75	$134.54	$138.44
Data Analyst (Engineering Tech II)**	$97.17	$99.98	$102.88	$105.87
Data Technician (Engineering Tech I)**	$74.74	$76.91	$79.14	$81.44
Computer Operator III**	$97.17	$99.98	$102.88	$105.87
Computer Operator II**	$74.74	$76.91	$79.14	$81.44
Computer Operator I**	$67.27	$69.22	$71.23	$73.29
Secretary I**	$74.74	$76.91	$79.14	$81.44

Professional Labor Categories and Qualifications

The table below describes ARS' staff qualifications and experience by GSA labor category. All personnel meet *one or both* of the labor experience and education requirements noted. ARS employees are categorized as exempt (salaried) and non-exempt (hourly) as defined by the Fair Labor Standards Act (FLSA). Staff labor is billed to federal contracts based on hours worked. There are no uncompensated overtime hours. All overtime hours for non-exempt employees are paid in accordance with the FLSA.

Professional Labor Categories and Qualifications
November 20, 2017, through November 19, 2027

Labor Category (SCA Code)	Functional Responsibilities/Qualifications	ONE OR BOTH CRITERIA APPLY	
		Minimum Education	Minimum Experience
Senior Scientist/ Program Manager	Advanced technical and management experience in environmental sciences and natural resources, including a broad range of operational applications and research projects.	M.S.	15 yrs
Sr. Project Manager	Advanced expertise in one or more of the following areas: environmental-related compliance issues and federal and state regulations; performing and managing ambient air monitoring and meteorology monitoring programs, as well as operating principles and field applications for a wide variety of monitoring instrumentation; performing and managing data analysis and research programs, as well as data interpretation and/ or designing and managing technical aspects of comprehensive monitoring and data analysis projects.	M.S.	10 yrs
Project Manager	Advanced expertise in one or more of the following areas: environmental-related compliance issues and federal and state regulations; designing, maintaining, and managing ambient air monitoring and meteorology monitoring programs, as well as development and implementation of operating principles and field applications for a wide variety of monitoring instrumentation; and/or performing and managing technical reviews, data analysis including data interpretation, and research programs.	Pertinent B.S. degree	5 yrs
Sr. Programmer/ GIS Specialist	Advanced expertise and experience in one or more of the following areas: computer software and applications design and development; data handling and analysis; maintenance of air quality database management systems and Web sites; design and development of graphical user interfaces and programming systems.	Pertinent B.S. degree	5 yrs

Professional Labor Categories and Qualifications (continued)

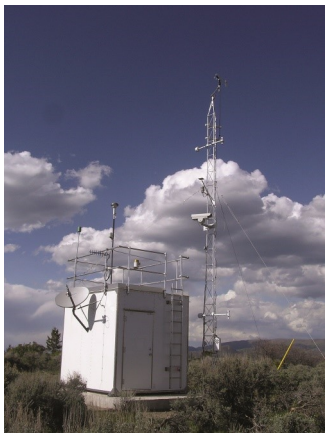
November 20, 2017, through November 19, 2027

Labor Category (SCA Code)	Functional Responsibilities/Qualifications	ONE OR BOTH CRITERIA APPLY	
		Minimum Education	Minimum Experience
QA Manager/ Technical Writer	Advanced knowledge in the composition and editorial review of scientific and technical documents, reports, training and instrument operations materials, and Internet publications specifications.	Pertinent B.A. degree	5 yrs
Technical Field Manager	Advanced experience with ambient air quality and meteorological monitoring technologies and quality assurance requirements necessary to support EPA-reference method monitoring networks. Technical Field Manager responsibilities often require interfacing with field specialists and data analysts for complete oversight of network quality assurance.	Pertinent B.S. degree	10 yrs
Programmer/ Data Modeler	Advanced expertise in atmospheric science, dispersion modeling, and air quality regulatory models. Relevant experience includes understanding of satellite imagery for evaluating the influence of complex terrain on mesoscale meteorology.	Pertinent M.S. degree	10 yrs
Sr. Field Specialist	Advanced experience with ambient air quality and meteorological monitoring technologies necessary to support ongoing equipment operations, efficient data acquisition, and quality control. Senior Field Specialist duties often include direction of field specialist and field technician staff and oversight of network personnel's scheduled responsibilities.	Pertinent B.S. degree	10 yrs
Field Specialist	Qualifications include experience with ambient air quality and meteorological monitoring technologies necessary to support ongoing equipment operations, efficient data acquisition, and quality control.	Pertinent B.S. degree	5 yrs
Field Technician** (23370)	Qualifications include relevant experience and/or training with ambient air quality and meteorological monitoring equipment.	High School Diploma or equivalent	2 yrs
Sr. Project Scientist	Qualifications include intermediate expertise in one or more of the following areas: scientific data analysis protocols, data quality assurance, and/or regulatory analysis and interpretation.	Pertinent B.S. degree	5 yrs
Project Scientist	Qualifications include entry level experience in one or more of the following areas: scientific data analysis protocols, data quality assurance, and/or air emission calculations, and compliance reports.	Pertinent B.S. degree	5 yrs
Electronics Technician Maintenance I** (23181)	Advanced experience with monitoring instrumentation and support acquisition systems. Oversight responsibilities include routine maintenance and servicing of visibility monitoring and data acquisition system instrumentation.	Pertinent A.A.S. degree	5 yrs

Labor Category (SCA Code)	Functional Responsibilities/Qualifications	ONE OR BOTH CRITERIA APPLY	
		Minimum Education	Minimum Experience
Laboratory Technician** (30210)	Qualifications include relevant experience and/or training in electronics required.	High School Diploma or equivalent	2 yrs
Sr. Data Analyst Environmental Technician**	Qualifications include advanced expertise in one or more of the following areas to support ongoing network operations: scientific data analysis protocols, data quality assurance, and/or ambient air quality and meteorological monitoring technologies.	Pertinent B.S. degree	10 yrs
Data Analyst** (30082)	Qualifications include intermediate expertise in one or more of the following areas to support ongoing network operations: scientific data analysis protocols, data quality assurance, and/or ambient air quality and meteorological monitoring technologies.	Pertinent B.S. degree	5 yrs
Data Technician** (30081)	Works under direct supervision to assist in data collection and validation processes for air monitoring networks. Responsibilities include data acquisition, data management, and data validation. Relevant experience and/or training with scientific data analysis protocols, and/or ambient air quality and meteorological monitoring technologies.	Pertinent B.S. degree	0 yrs
Computer Operator III** (14043)	Position requires experience with hardware and software technologies necessary to support data acquisition, quality control, processing, analysis, and reporting; air quality database management systems and Internet Web sites; GIS; and modeling.	Pertinent B.S. degree	10 yrs
Computer Operator II** (14042)	Position requires experience with hardware and software technologies necessary to support data acquisition, quality control, processing, analysis, and reporting; air quality database management systems and Internet Web sites; GIS; and modeling.	Pertinent B.S. degree	5 yrs
Computer Operator I** (14041)	Qualifications include relevant experience and/or training in computer technologies.	High School Diploma or equivalent	0 yrs
Secretary I** (01311)	Qualifications include relevant experience with composition and editorial review of scientific and technical documents, reports, and Internet publication methods.	High School Diploma or equivalent	2 yrs

Air Quality Monitoring and Auditing

Air Resource Specialists, Inc. (ARS) is nationally recognized for its expertise in air quality monitoring, modeling, analysis, and research for federal and state agencies, regional planning organizations, municipalities, Indian nations, and private industry. ARS offers a full range of traditional and special purpose monitoring services to support compliance-related regulatory or research requirements, including:



- Design, implementation, coordination, and operation of monitoring sites (stationary and mobile), networks, major air quality field programs, and special studies
- Monitoring of ambient gaseous pollutants and particulates (e.g., O_3, SO_2, NO_X, NO_y, CO, H_2S, NH_3, PM_{10}, $PM_{2.5}$, hydrocarbons, speciated aerosols, and VOCs)
- Meteorological monitoring including portable systems, 10 meter towers, tall towers, SODAR, and other configurations
- Visibility monitoring including digital cameras, nephelometers, transmissometers, IMPROVE samplers, and visibility Web sites
- Toxic and hazardous air pollutant (HAPs) monitoring
- Real-time data polling and uploads to data presentation Web sites
- Data collection, validation, analysis, and reporting
- Visibility and air quality modeling, including visibility metrics research
- Audit (performance and systems audits, PEP, NPAP), research and instrument services

Environmental Assessments and Impact Statements under NEPA and Air Modeling

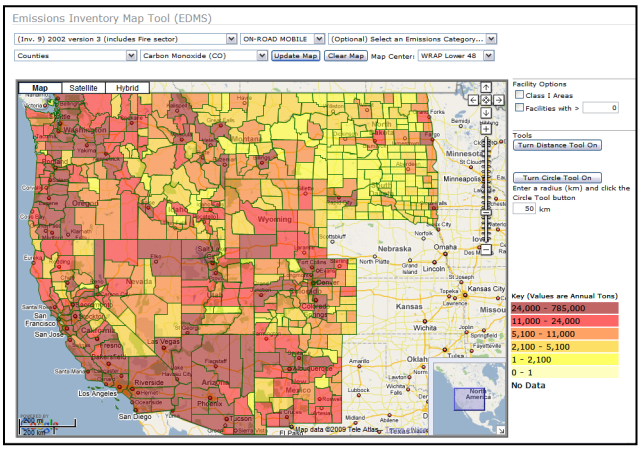
Air Resource Specialists, Inc. (ARS) provides environmental consulting services to support federal, state, tribal, and local government and private sector clients. ARS' in-house Environmental Compliance Section has reviewed hundreds of permit and environmental impact statement (EIS) modeling protocols, assessed environmental impacts, prepared air quality EIS sections, and developed and implemented modeling protocols for EIS documents in compliance with the National Environmental Policy Act (NEPA). ARS is qualified to create or participate in any team arrangement required for EIS planning and documentation services.

ARS environmental consulting experience includes:

- Air quality regulatory models
- Dispersion modeling
- Impact assessment and regulatory planning tools
- Visibility modeling
- Stationary and mobile source analysis
- Permit applications
- State Implementation Plan (SIP) conformity analyses
- Model use publications
- Compliance monitoring strategies
- Management of complex projects from technical review to agency approval

Advisory Services in Support of Agency Environmental Programs and Environmental Regulation Development

Air Resource Specialists, Inc. (ARS) provides environmental data services to support historical and ongoing research and regulatory monitoring. Data analyses often include spatial and temporal characterization to support national, regional, state, and urban regulatory issues.



Deliverable products and services include:

- Regulatory data summaries
- Statistical analyses and interpretation
- Emissions density maps
- Human perception of visibility studies
- Internet-based databases, analytical tools, and presentation formats

Environmental Compliance Audits, Permitting, Spill Prevention / Control and Countermeasure Plans and Community Right-to-Know Act Reporting

ARS supports an array of environmental compliance services from environmental program advisory services, routine audits and permit reviews to extensive facility permits, compliance assessments, and New Source Review (NSR), New Source Performance Standards (NSPS), Prevention of Significant Deterioration (PSD), and Non-Attainment area report requirements.

ARS' Environmental Compliance Section consists of highly qualified and experienced atmospheric scientists, environmental scientists, project engineers, and air quality specialists. These professionals help regulated facilities, as well as reviewing agencies, identify permitting needs and monitor compliance requirements of the Clean Air Act, Greenhouse Gas Rules, Clean Water Act, and state/local regulations. Project activities include:

- Permit applications for new/modified plant construction (PSD, Title V, etc.)
- Stormwater and wastewater discharges under the National Pollutant Discharge Elimination System
- Defining applicable and non-applicable regulations
- Expert testimony
- Compliance audits and assistance
- Preparation of facility air quality and stormwater permits
- Emission inventories (including Greenhouse Gas)
- Dispersion modeling and impact assessment
- Air, water, stormwater, and toxic release inventories
- Spill Prevention/Control and Countermeasure Plans (SPCC), NPDES, Title V permits, and "Form R" reports under the Emergency Planning and Community Right-to Know Act (EPCRA).

ARS' SIN 541620 Corporate Experience

- National Park Service Gaseous Pollutant Monitoring Program
- Bureau of Land Management Conformity Analysis
- Three-State Intermountain West Pilot Study
- IMPROVE / National Park Service Visibility Monitoring Program
- U.S. Forest Service Air Monitoring and Web Camera Network
- Interstate 70 Air Toxics Gradient Study
- Office of Surface Mining Reclamation and Enforcement
- Wyoming Department of Environmental Quality Air Quality Monitoring Network
- Glen Canyon National Recreation Area: Air Permitting for New Electric Power Generators
- Private Sector Permitting and Compliance Support
- Real-Time Data Presentations and Information Services
- Alberta Environment and Water – Data Quality Standard
- Western Regional Air Partnership – Comprehensive Tools and Analyses to Investigate Regional Haze

National Park Service (NPS) Gaseous Pollutant Monitoring Program

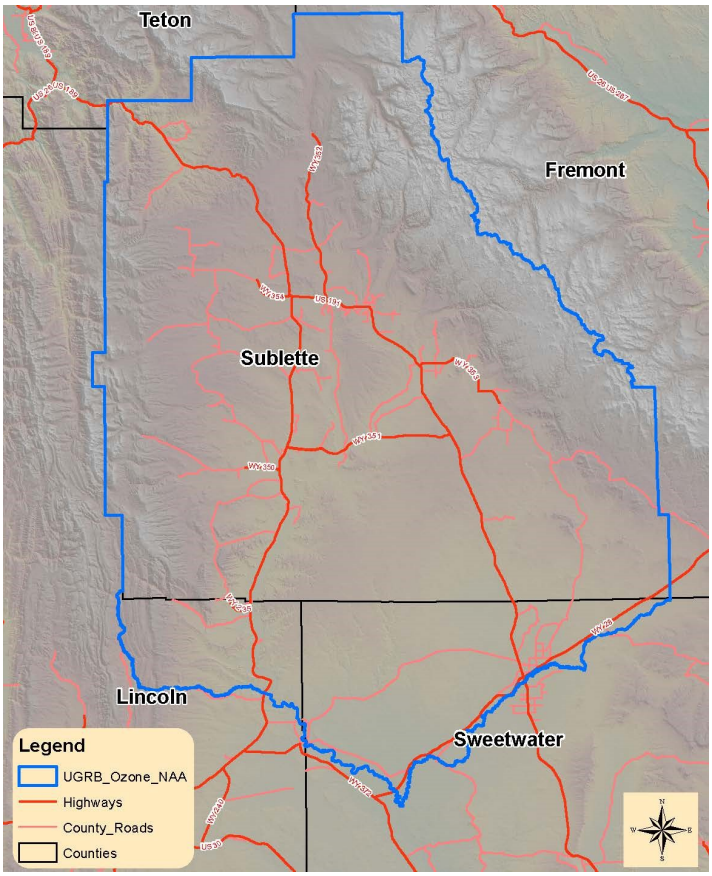
The National Park Service established its Gaseous Pollutant Monitoring Program (GPMP) in 1988 to monitor criteria pollutants linked to effects on NPS resources. ARS has performed the operation and maintenance aspects of the NPS GPMP since 1988, and the data collection, validation, and reporting aspects of the program since 1996. ARS works closely and cooperatively with the National Park Service Air Resources Division to develop and implement continued advancements that make the GPMP network a leader in national monitoring programs. These advancements have included creating the Information Management Center to collect and validate data, developing DataView software to provide site operators with an easy, electronic means of performing instrument checks, fabricating portable ozone monitoring systems (POMS), and enabling real-time Internet data availability.

Currently, the GPMP operates approximately 50 monitoring sites in 40 units of the National Park System. Monitored parameters include ozone, sulfur dioxide, carbon monoxide, nitrogen oxides, particulates, meteorological, and Clean Air Status and Trends Network (CASTNet) dry deposition filter pack sampling, and special monitoring systems, including portable ozone monitors, pollution alert systems, and enhanced high sensitivity monitoring systems.

ARS is responsible for site selection, installation, network operations, instrument calibration and maintenance, site operator support, calibration standards and certifications, quality assurance documentation, and all other aspects of monitoring network operations. ARS makes all validated GPMP data available to researchers and the public on a Web page linked to the NPS air quality site (http://ard-request.air-resource.com), and EPA's Air Quality System (AQS) and AIRNow.

Bureau of Land Management – Conformity Analyses

Section 176(c) of the Clean Air Act prohibits Federal entities from taking actions in air quality non-attainment or maintenance areas that do not conform to the applicable State Implementation Plans (SIP) for attaining and maintaining the National Ambient Air Quality Standards (NAAQS). One approach to addressing conformity under 40 CFR Part 93 is to generate a "Presumed to Conform" list. ARS and its subcontractor (ICF International) worked with the Bureau of Land Management (BLM) Wyoming State Office, in cooperation with the EPA, Wyoming Department of Environmental Quality (WDEQ), and local oil and gas production companies, to develop a Presumed to Conform listing for BLM's activities in the Upper Green River Basin ozone non-attainment area in southwestern Wyoming. ARS documented expected volatile organic compound (VOC) and nitrogen oxide (NO_X) emissions associated with various agency activities, and those activities having emissions less than a specified threshold would qualify as Presumed to Conform. ARS is currently assisting BLM to prepare a Federal Register notice listing the Presumed to Conform activities and required technical documentation. Once approved, the listed Presumed to Conform activities would be exempt from further technical analysis under conformity.

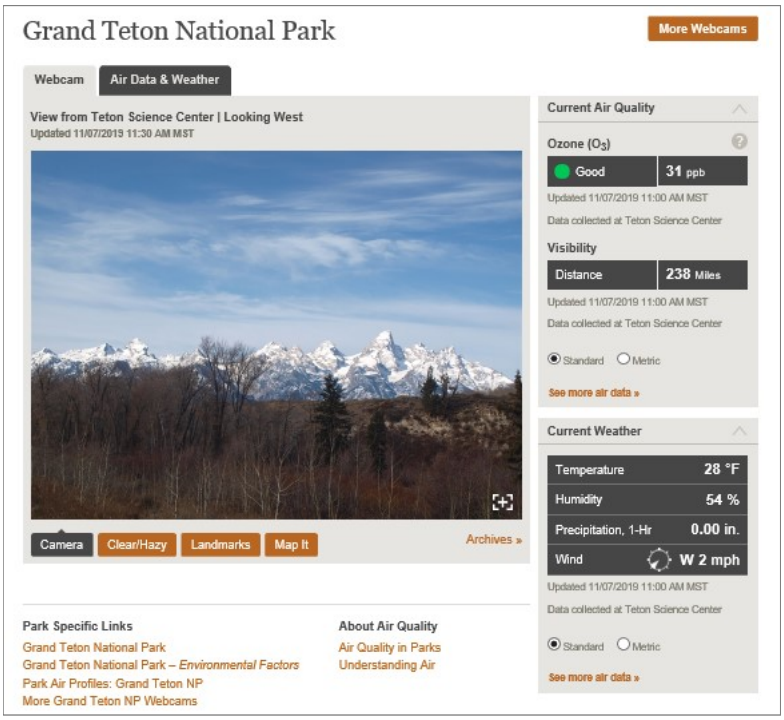


Three-State Intermountain West Pilot Study

The U.S. Environmental Protection Agency, the federal land managers (Bureau of Land Management, National Park Service, and US-Forest Service) and the states of Colorado, Utah, and Wyoming (and later New Mexico), have coordinated efforts to conduct a Three-State Pilot Study to determine the impacts of ozone and other pollutants in oil and natural gas development areas in the southern Rocky Mountain region. Collected data are used to provide a collaborative data warehouse and regional modeling center that serves the Intermountain West region, establishes baseline air quality conditions, tracks air quality trends, and evaluates air quality modeling systems.

ARS' ongoing role in the study is to assist agency partners with day-to-day monitoring, maintenance, and data management. ARS has supported stations specifically for this study: Escalante, UT (sponsored by the Forest Service and BLM); Chaco Culture National Historic Park, NM (sponsored by the BLM) and Elk Springs and Paradox, CO (sponsored by the Colorado Department of Public Health and Environment).

IMPROVE/NPS Visibility Monitoring Program



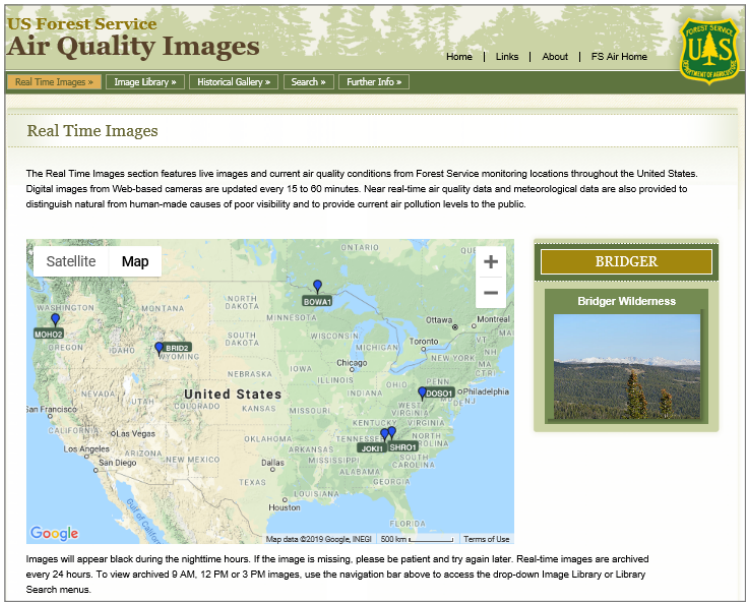
The National Park Service (NPS) Visibility Monitoring Program joined with the Interagency Monitoring of Protected Visual Environments (IMPROVE) program in the mid-1980s. The primary goals of the IMPROVE/NPS programs are to establish baseline data on existing visibility conditions in Class I areas, identify trends of deterioration or improvement, determine the relative importance of various atmospheric constituents to visibility impairment, determine the sensitivity of individual areas or views, and identify potential areas of impairment. The regulatory and research program has three components. The first component, aerosol monitoring, measures the atmospheric aerosols responsible for reduced visibility. The second component, optical monitoring, measures the optical properties of atmospheric aerosols. The third component, scene monitoring (accomplished with digital or video cameras) documents the visual clarity or impairment of specific unique vistas

ARS is the prime contractor for the optical and scene components of the NPS Visibility Monitoring Program. ARS provides technical and operational support services of the IMPROVE and NPS visibility monitoring networks nationwide. Regulatory and research monitoring services include:

- Calibration, maintenance, data collection, processing, validation, reporting, and quality assurance documentation.
- Research and development of visibility monitoring instrumentation and analysis techniques, including digital camera systems, nephelometers, transmissometers and meteorological instrumentation.
- Support of field research programs, including ROMANS (Rocky Mountain Atmospheric Nitrogen and Sulfur study), Yosemite Aerosol Characterization Study, BRAVO (Big Bend Regional Aerosol and Visibility Observational study), Grand Canyon Regional Aerosol and Visibility Study, and other major special studies.
- Technical and operational support for the National Park Service air quality Web-based digital camera network. (https://www.nps.gov/subjects/air/webcams.htm) as well as software development to provide real-time images and content for the network.

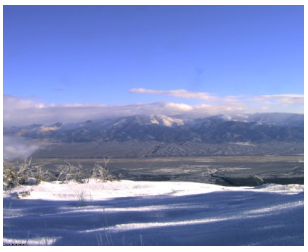
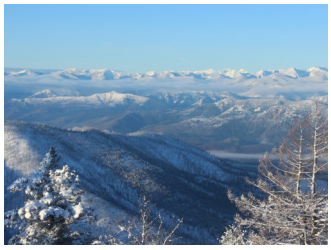
ARS is currently conducting a research program for the NPS to understand the impact of particulates on light intrusion into night sky environments. The program utilizes a sensitive camera system designed by ARS and deployed in Bryce Canyon National Park, which has some of the darkest night skies in the U.S.

U.S. Forest Service (FS) National Ambient Air Monitoring and NEPA Support



ARS provided technical and operational support for the Forest Service's Air Monitoring Network. This included support of Web-based digital cameras and one ambient air quality monitoring station consisting of ozone, carbon monoxide, nitrogen oxides, and a meteorological monitoring system. Network support services also included software development to provide images and air quality data content to the Forest Service Air Quality Images Web Site, and long term archive of image monitoring data.

ARS has also provided the Forest Service air program staff with routine compliance assistance and planning assistance with respect to air permitting regulations, as well as State Implementation Plan (SIP), Environmental Site Assessments (EA) and Environmental Impact Statement (EIS) preparation.


Interstate 70 Air Toxics Gradient Study

ARS partnered with the Denver Department of Public Health and Environment (DDPHE) to design, install and operate three field campaigns to study air toxics gradients along a residential section of Interstate 70. ARS collected air samples with a large network of SUMMA ® canisters and used a contract laboratory to analyze the samples following EPA's Compendium Method TO-15. Each monitoring site was solar powered, used a datalogger to collect diagnostics and trigger events, and was capable of operating two canisters on different collection frequencies. ARS also operated personal aethalometers at a number of the sites to monitor black carbon concentrations.

The study results will help DDPHE make decisions related to pending I-70 modifications, and a future study, once the modifications are complete, is anticipated.

Department of the Interior – Office of Surface Mining Reclamation & Enforcement (OSMRE): Trapper Mine Environmental Assessment

ARS provided the air and climate resources evaluation to support an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for the Trapper Mine, a surface coal mine located in northwest Colorado. ARS staff also participated in public involvement meetings organized by OSMRE. ARS' technical activities for the EA including developing baseline data on air and climate resources, calculating direct and indirect air emissions associated with the mining operations, including PM_{10} and $PM_{2.5}$ emissions associated with mining activities. ARS also quantified air emissions associated with fuel combustion from the mining equipment and haul trucks. Greenhouse gas (GHG) emissions were quantified and evaluated, including fugitive GHG emissions released at the coal seams and GHGs associated with fuel combustion from the mining equipment and trucks. Direct mining emissions were evaluated using the EPA AERMOD model for compliance with National Ambient Air Quality Standards (NAAQS). ARS also addressed the indirect mining impacts associated with coal combustion at the adjacent Craig Generating Station, including SO_2, NO_X, and GHGs along with air quality emissions associated with the permanent storage of coal combustion residuals within the mine site. Estimates of mercury emissions from coal combustion were also determined and used as data for the biological assessment conducted in conjunction with the EA.

Wyoming Department of Environmental Quality (WDEQ) Air Quality Monitoring Network

ARS fully supports monitoring of air quality (O_3, SO_2, CO, NO_X, NO_y, hydrocarbons and PM), visibility, and meteorology at a number of stationary and mobile monitoring stations in the WDEQ Network. Regulatory monitoring services include site selection, station fabrication, installation, operation, data collection, processing, validation, analyses, reporting, QAPP, SOP and quality assurance documentation. ARS also provides enhanced data and trends analyses, participates in regional planning meetings, and provides specialized training and consulting on air quality and visibility issues related to the dynamic energy industry in the state.

Mobile Monitoring Station

ARS has designed and operates three mobile stations for WDEQ to support short-term monitoring needs. Each station monitors continuous ozone, oxides of nitrogen, sulfur dioxide, hydrocarbons, $PM_{2.5}$, PM_{10}, and meteorology (on a telescoping 10-meter tower). Each is also equipped with a visibility Web camera to document scenic conditions and a satellite communications system for remote locations. Station setup and takedown is simple for one person to do alone.

Green Monitoring Stations

ARS staff includes experts in installing and operating ambient air quality stations in remote areas, without typical electrical power or accessibility. The ARS-designed and installed Hiawatha station is the WDEQ's only ambient air quality monitoring station that uses renewable energy as its primary power source. The solar/wind powered monitoring station was established to assess ambient air quality in a remote area of oil and gas development.

National Park Service – Glen Canyon National Recreation Area: Air Permitting for New Electric Power Generators

ARS supported the acquisition of air quality permits for new diesel-fired electric power generators to be installed by the National Park Service (NPS) at recreation sites in the Glen Canyon National Recreation Area (GCNRA). Given the remote location of the area (Lake Powell), electrical power to support GCNRA recreation facilities such as marinas, concessionaires, restaurants and lodging, etc. is generated on site. Permits were obtained for new generators at three recreation sites: Bullfrog, Halls Crossing, and Hite. NPS selected Tier-3 and Tier-4 engines for the project to minimize emissions and the impact on the environment. ARS supported the permitting activities by:

- consulting with the state regulatory agency on permit requirements
- estimating emissions from the selected engines
- documenting that engine emissions would satisfy regulatory requirements for Best Available Control Technology (BACT)
- performing air dispersion modeling using AERMOD to demonstrate that air quality impacts would be below the National Ambient Air Quality Standards
- completing all permit application forms and addressing questions from the regulatory agency on the permit applications
- assisting NPS prepare comments on draft air quality permits

Private Sector Permitting and Compliance Support

ARS provides environmental permitting and compliance support to regulated entities located across multiple states. For example, ARS provides technical and regulatory support on Clean Air Act permitting for capital projects, including air quality permit applications for new/modified plant construction (PSD, Title V, minor source, etc.). Under the Clean Water Act, ARS prepares wastewater and stormwater discharge applications under the National Pollution Discharge Elimination System (NPDES) program. ARS provides the technical and regulatory analyses to support these air and water discharge permit applications, including emission calculations, air quality dispersion modeling, and emissions control technology assessments for selection of controls meeting standards for Reasonably Available Control Technology (RACT), Best Available Control Technology (BACT), and/or Lowest Achievable Emission Rate (LAER).

As required to support the above activities, ARS also assists by representing clients at meetings with regulatory agencies and interested stakeholders, and testifying at public hearings and other administrative proceedings concerning the permit applications. Once permits are issued, ARS provides continuing support for plant-level and corporate environmental compliance activities, including preparing environmental data reports and related documents for submission to regulatory agencies. For example, ARS completes emission inventory reports for criteria pollutant and greenhouse gas (GHG) emissions and Toxic Release Inventory (Form R) reports. ARS also aids clients by assessing plant-level environmental compliance status through formal multi-discipline audits and similar reviews, developing client-friendly tools that track environmental data and enhance in-house environmental compliance programs, preparing Stormwater Pollution Prevention Plans (SWPPPs) and Spill Prevention Control and Countermeasure (SPCC) Plans, providing training to plant-level and corporate EHS staff on required environmental compliance activities, and managing third-party environmental monitoring programs such as leak detection and repair (LDAR) programs and stack emissions testing.

Real-Time Data Presentations and Information Services (various contracts)

In conjunction with air quality related regulatory and research monitoring services, ARS supports responsive web-design (RWD) as well as real-time data presentations and information services. Current project Web sites include:

- Gaseous Pollutant Monitoring Program (GPMP) and database access utility
  http://ard-request.air-resource.com
- National Park Service Visibility Camera Web site
  https://www.nps.gov/subjects/air/webcams.htm
- Wyoming Air Resource Monitoring System (WARMS) Web site
  http://www.blmwarms.net
- Colorado BLM White River Field Office Web site
  http://www.colowhiteriverairquality.net/
- Arizona DEQ Phoenix Visibility Web Cameras Web site
  http://www.phoenixvis.net
- Garfield County, Colorado, Real-Time Air Quality Information Web site
  https://www.garfield-county.com/air-quality/

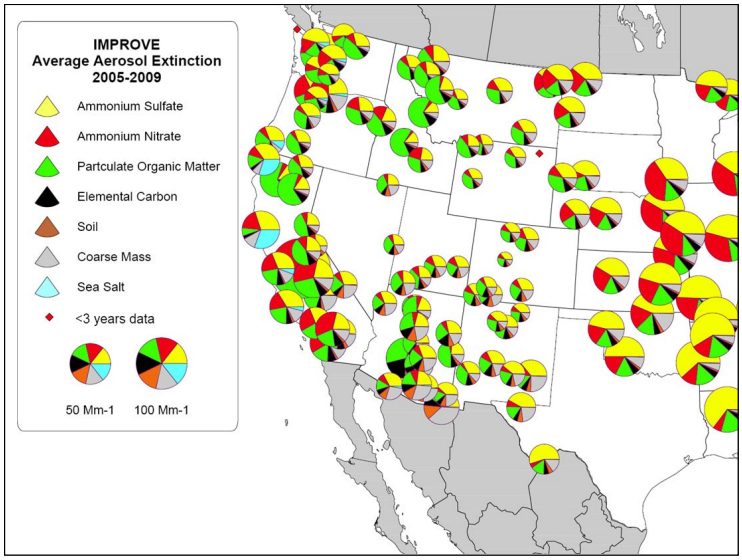
Alberta Environment and Water – Data Quality Standard

ARS developed a Data Quality Standard for ambient air quality for Alberta Environment and Water (AEW), a division of Canada's Ministry of Environment. This standard was developed as part of Alberta's Air Monitoring Directive, which is similar in scope to U.S. Environmental Protection Regulations for air quality, and specifies environmental monitoring and reporting requirements designed to ensure that air data are consistent, of known quality, and defensible.

ARS reviewed, evaluated, and reported on methodologies from AEW, and from select U.S. jurisdictions that follow U.S. EPA regulations, to assess what requirements and guidelines would best meet AEW's data quality objectives. The assessment included recommendations for processes including data handling, storage, verification and validation procedures, and reporting requirements. The final regulatory document drafted by ARS was the result of a consensus-based approach involving numerous stakeholders, including AEW, airshed, and industry representatives.

Western Regional Air Partnership (WRAP) – Comprehensive Tools and Analyses to Investigate Regional Haze

ARS has a long history of supporting the Western Regional Air Partnership (WRAP) which is a group comprised of representatives from cooperating western states, tribes, and federal agencies, established in 1996 to develop technical and policy tools to assist western states and tribes to comply with the EPA Regional Haze Rule.



ARS developed, hosts, and maintains the WRAP Project Web Site (http://www.wrapair2.org) and hosts an archived version of the WRAP's original web site.

In the mid-2000's ARS compiled and analyzed a variety of techniques designed to attribute haze impacts at over 100 tribal and mandatory federal Class I areas. ARS prepared a policy-level report and Web page presenting these results. The final Phase I project report is available on the Web at: http://wrapair.org/forums/aoh/ars1/report.html. Phase II of this project consisted of development of a comprehensive Web-based Technical Support System (TSS) which has been used by states to support development of their Regional Haze SIPs (http://views.cira.colostate.edu/tssv2/). This system houses monitoring, modeling, emissions, and attribution data related to the WRAP region.

ARS completed the WRAP's Regional Haze Reasonable Progress Report in 2013. The report is an in depth analysis of 15 western states' progress in addressing regional haze over the previous 10 years. Contents of the report include regional, state, and Class I Area – specific analyses of IMPROVE speciated particulate matter, especially changes and trends over the last decade, and regional and state summaries of changes in emissions inventories.

Current work for the WRAP includes performing data analyses related to the new EPA Impairment Metric and redesign support for the aging TSS website.