

NOAA/INL METEOROLOGICAL RESEARCH PARTNERSHIP INTERAGENCY AGREEMENT STATEMENT OF WORK CALENDAR YEARS 2013-2017

This Statement of Work (SOW) describes work to be accomplished in a new 5-year Interagency Agreement (IAG) that will operate under the umbrella of the Memorandum of Agreement (MOA) between DOE-ID and NOAA for the NOAA/INL Meteorological Research Partnership. The current IAG (DE-AI07-08ID14898) is set to expire in December 2012. This SOW covers the period of January 2013 through December 2017. It is based on recent discussions with DOE-ID and INL contractor Emergency Management personnel, the DOE Meteorological Coordinating Council's 2010 INL Meteorological Program Follow-up Assist Visit report, and the 1989 guidance document entitled "Modernization of the INEL Meteorological Monitoring and Emergency Response Capability: A General Design." The regulatory guidance and DOE orders followed in preparing this SOW include: 1) the Clean Air Act, 2) DOE Order 458.1, 2) DOE Order 151.1C and associated Guides, 3) DOE Guide EH-0173T, 4) ANSI/ANS-3.11 (2005), and other general industry practices and standards.

NOAA's Air Resources Laboratory Field Research Division (ARLFRD) will support the NOAA/INL Meteorological Program through five tasks that are given in bullet form below. These tasks include: 1) management and reporting of the program, 2) operation of the NOAA/INL Mesonet (including data quality assurance), 3) NOAA/INL Mesonet data dissemination, 4) INL weather forecasting and EOC support, and 5) modeling and research in support of INL activities. The task list is not all-inclusive, but provides most of the details for the proposed effort.

Support of the Partnership, based on the aforementioned discussions and documents, requires the annual effort of approximately 6 NOAA full-time equivalents (FTEs). However, this effort is spread over all ARLFRD employees, so specific employees are not matched by name to each of the tasks in this SOW. Instead, the effort has been divided according to the occupational categories required to complete the various tasks. A given task might require the skills mix of several employees. The ARLFRD Director, at his discretion, will assign the work load and ensure the accomplishment of the various tasks. In addition to the labor effort, full support of the Partnership requires additional monies for equipment and supplies.

It is envisioned that the major tasks of this SOW will remain constant during the life of the IAG, but that some subtasks will become obsolete while new subtasks will, of necessity, be created. This process will occur under the direction of the ARLFRD Director, who will adjust manpower loads to maintain the current FTE level of effort in consultation with DOE-ID. Should new requirements arise that are not within this framework, an analysis will be performed to identify the impacts of complying with the new requirements and, if needed based on the results of the analysis, a new level of effort and compensation would be negotiated. As examples, new requirements could include regulatory compliance; creation or modification of existing DOE Orders; and INL Site-specific operational requirements. NOAA and DOE-ID will discuss and negotiate contraction or expansion of the specific scope contained within the five tasks of this IAG and mutually agree to the associated necessary modifications to the level of effort and compensation as appropriate.

TASK LIST

1. Partnership Oversight and Reporting

- Provide planning, management, and oversight of ARLFRD personnel in support of the NOAA/INL Meteorological Research Partnership.
- Maintain and oversee ARLFRD's portion of the NOAA/INL Meteorological Research Partnership budget.
- Prepare and submit quarterly progress reports to designated DOE-ID personnel.
- Ensure that ARLFRD activities comply with all applicable Occupational Safety and Health Administration, U.S. Department of Commerce, and NOAA safety regulations.
- Respond to DOE-ID management requests for meteorological expertise and advice.
- Participate as requested in DOE-ID public outreach programs and meetings.
- Participate as a member of the INL Monitoring and Surveillance Committee, the INL Emergency Management Workgroup, and other appropriate INL environmental and emergency management organizations.
- Respond to recommendations stemming from the 2010 DMCC Meteorological Program Follow-up Assist Visit at INL. ARLFRD will address the recommendations as appropriate, given the limitations imposed by funding and the current size of the ARLFRD staff.

2. NOAA/INL Mesonet Operation

- Operate and maintain the existing 36-station NOAA/INL Mesonet, including radio repeaters and associated meteorological, telemetry, and data recording systems.
- Ensure that the NOAA/INL Mesonet data recovery equals or exceeds the required 90% minimum.
- As part of the NOAA/INL Mesonet, operate and maintain the 6 Idaho Environmental Monitoring Program (IEMP) meteorological towers. Coordinate data collection and dissemination with the other IEMP participants.
- Operate and maintain the NOAA/INL remote sensing systems that provide vertical profiles of wind, temperature, and turbulence above the INL. Currently, this includes a radar wind profiler with radio acoustic sounding system (RASS) and a high-resolution minisodar.
- Operate and maintain the meteorological flux station at Grid 3 for direct measurement of atmospheric turbulence and stability near the surface.
- Provide on/off control at ARLFRD for collocated high-volume air samplers installed and maintained by INL contractor at various NOAA/INL Mesonet towers.
- Acquire appropriate supporting meteorological and nuclear radiation data (without additional cost to DOE-ID) to enhance the NOAA/INL Mesonet database, such as pressurized ionization chamber data from the state of Idaho, the INL contractor, and the Environmental Surveillance, Education, and Research (ESER) Program.
- Archive all NOAA/INL Mesonet data and maintain archive redundancy.
- Establish and periodically contribute to a NOAA/INL Mesonet data archive in the INL EDMS.
- Provide continuous automated quality control of NOAA/INL Mesonet data. In addition, provide timely manual review and quality control of NOAA/INL Mesonet data to ensure compliance with best practices.

- Provide 2-deep quality assurance capability within the ARLFRD staff.
- Perform semiannual calibrations on all meteorological equipment.
- Perform periodic system accuracy calculations as needed.
- Conduct physical and safety audits at tower locations according to the NOAA/INL Mesonet quality assurance plan. Perform maintenance as needed.
- Annually review and update the NOAA/INL Mesonet quality assurance plan and procedures.
- Collect additional meteorological data of interest to INL to enhance forecasting and other efforts, such as weather radar data and images, meteorological satellite images, lightning detection data, fire weather observations, and the NOAA National Centers for Environmental Prediction forecast model numerical and visual output.

3. NOAA/INL Mesonet Data Distribution

- Distribute real-time NOAA/INL Mesonet data to INL clients through various Internet services such as HTTP. This includes observations from the towers and the remote sensors.
- Maintain and improve the browser-based NOAA/INL Mesonet display client as the primary distribution method for Mesonet data.
- Provide training to DOE-ID and contractor personnel on an as-needed basis for the browser-based NOAA/INL Mesonet display client.
- Distribute real-time NOAA/INL Mesonet data to non-INL clients to foster good public relations and to assist with the creation of severe weather watches and warnings. These clients include, but are not limited to, the local National Weather Service Weather Forecast Office in Pocatello, the University of Utah MesoWest, and NOAA's Meteorological Assimilation Data Ingest System (MADIS).
- Maintain the telephone teller system to provide 24/7/365 telephone access to real-time NOAA/INL Mesonet data.
- Provide support during normal working hours for live NOAA/INL Mesonet data telephone requests.
- Provide targeted monthly and annual NOAA/INL Mesonet climatological statistics to DOE-ID, INL, and outside agency personnel.
- In response to one-time requests, provide specialized data sets from archived climatological data to DOE-ID and INL users. If the generation of a specialized data set will require more than 4 man-hours of effort, additional funding will be requested from the requester.
- Provide the climatological data required to develop dose assessments in the annual National Emission Standards for Hazardous Air Pollutants (NESHAP) report.
- Complete a new edition of the INL Climatology incorporating NOAA/INL Mesonet data through 2015.

4. INL Weather Forecasts and EOC Support

- Maintain and improve the current INL forecast system for the three different local climate zones at INL.
- Provide support during normal working hours for specialized INL weather forecast requests, as requested.
- Maintain and improve the NOAA/INL Weather Center web page to provide a central

- access point for all INL forecast and data products generated by ARLFRD.
- Issue notices of significant weather events such as thunderstorms, lightning danger, blizzards, and high winds to WCC and other designated INL entities during normal ARLFRD business hours. These notices will also be posted on the NOAA/INL Weather Center web page.
 - Provide specialized forecasts to DOE-ID contractors in support of seasonal construction activities and other special needs, as requested.
 - Provide an on-call 24/7 emergency response meteorologist to staff the EOC who will operate the INL transport and dispersion model and provide interpretations of the model output, and who will provide weather nowcasts and short-term forecasts.
 - Provide 4-person deep meteorological expertise to the EOC emergency response organization.
 - Ensure proper operation of EOC computers operated by NOAA personnel.
 - Participate in all suggested EOC drills, exercises, and training sessions.
 - Provide custom meteorological data sets for EOC drills and exercises when requested.
 - Coordinate all EOC plans and activities with the INL emergency management organization.
 - Review and update NOAA EOC checklist procedures annually.

5. Modeling and Research in Support of INL Activities

- Operate and update, as appropriate, a mesoscale numerical forecast model to provide high-resolution weather simulations utilizing NOAA/INL Mesonet data for the region around INL.
- Maintain and operate the NOAA EOC HYSPLIT dispersion modeling system to provide emergency dispersion nowcasts based on NOAA/INL Mesonet data and dispersion forecasts based on the simulated winds from the mesoscale model.
- Provide ARLFRD dispersion model training to DOE-ID and contractor personnel on an as-needed basis.
- Provide atmospheric dispersion model output for the annual INL Site Environmental Report.
- When applicable, conduct applied research activities of common interest to NOAA and INL to improve understanding of boundary layer processes. These may include dispersion studies for improved dispersion modeling products or surface flux studies to improve estimates of the contribution of the sagebrush steppe ecosystem to the global CO₂ balance.
- Test, characterize, and evaluate new weather instruments, data loggers, radio transmitters, measurement methods, etc., as appropriate to improve or replace outdated methodologies and instruments.

MANPOWER AND BUDGET

The manpower matrix for the tasks outlined above is shown below. The values in the table represent FTEs or portions thereof. The project will require the skills of a supervisory meteorologist, an administrative officer, meteorologists, computer scientists, and electronic technicians. The total manpower requirement equals 5.85 FTE annually for each year of the agreement.

Task	Supervisory Meteorologist	Administrative Officer	Meteorologist	Computer Scientist	Electronic Technician	Total
1	0.25	0.50	0.05			0.80
2			0.10	0.50	1.40	2.00
3			0.30	0.50		0.80
4			0.65	0.50		1.15
5			0.90	0.20		1.10
Total	0.25	0.50	2.00	1.70	1.40	5.85

All skills categories are comprised entirely of federal employees with the exception of the electronic technician, which is comprised entirely of contract employees. Overhead costs include leave and benefits that apply to federal employee labor at the average rate of 1.57 in FY12. Overhead rates vary from year to year and there has been a slight upward trend. No leave and benefits overhead is applied to contract employees. A general and administrative (G&A) amount is applied to each FTE to cover expenses such as building rent, communications, electricity, office supplies, etc. The cost per FTE is \$14,600 in FY12.

The first calendar year allotment for the CY13-17 IAG is scheduled to be approximately \$1,172,080. Funding increases will occur annually thereafter. Since NOAA is a federal government agency, it must comply with all laws and executive orders pertaining to federal salary increases and inflationary project costs. Therefore, each annual funding increase is anticipated to be identical to the federal salary adjustments provided by Congress or the President. Based upon anticipated Federal salary adjustments of 3.5% to 4.5% per year over the term of this IAG, the annual increase in funding for this IAG will not exceed 4% per year. DOE-ID's annual budget will be an important criterion in determining the annual funding increase. DOE-ID will take necessary steps and use their best efforts to obtain timely funding to meet the commitments under this IAG.

The cost breakdown for CY13 is as follows:

\$ 1,017,987.00 Federal Labor
 \$ 122,820.00 Contract Labor
 \$ 11,850.00 Transportation
 \$ 19,423.00 Leases/Supplies/Materials
 \$ 1,172,080.00 Total

It is understood that requests for large meteorological data sets that require extensive effort to construct, modeling efforts in excess of those described above, or other services that require extensive labor are not included in this statement of work. These costs are to be paid for separately by the requesting agency or group. Extensive effort is considered to involve employee time greater than four hours. However, this limit can be waived or adjusted at the discretion of the local NOAA Director in order to accomplish the spirit and intent of this statement of work.

OTHER DIRECT AND INDIRECT EXPENSES

Activities, services, and supplies in addition to the labor costs listed above are utilized and required by NOAA in support of the IAG. As required by federal regulations, expenses incurred by NOAA for these services will be fully reimbursed by DOE-ID. DOE-ID provides for these services through additional indirect funding. Services and supplies may be purchased from or through the INL contractor or from another commercial source. NOAA will determine each supplier on a case-by-case basis using economic and technical criteria to ensure the Government receives the best value available. In FY12, the support account was funded at \$200,000. This amount is expected to increase at the rate of the increase in the Consumer Price Index (CPI).

NOAA operates 36 meteorological and radio repeater stations in support of the IAG. Land leases and electrical power costs for many of these stations are additional expenses paid for by indirect funding. Twelve of the stations are on the INL. Therefore, NOAA bears no direct or indirect land lease or electricity costs for these stations. Responsibilities for leases and electricity for the stations located offsite are listed in Appendix 1 (by lessee) and Appendix 2 (by location).

Of the remaining 24 stations, land for 9 of the meteorological/repeater stations is leased directly by NOAA through the leasing authority of NOAA Real Estate. Six of these 9 stations are no-cost leases, while three leases require periodic lease payments. Copies of NOAA lease documents are attached in Appendix 3. Electricity to power three of these 9 stations is paid from indirect funding. Copies of electric bills for these three stations are also attached in Appendix 3. Electricity to power the remaining six stations is either paid by the landlord (3), participating partners (e.g., state of Idaho Oversight Program, 2), or it is a solar powered station (1).

Seven additional meteorological station land leases are provided by and maintained through the INL contractor. The rent for these stations is paid from indirect funding. Copies of INL contractor lease documents are attached in Appendix 4. Electricity to power four of these 7 stations is paid from indirect funding. Copies of electric bills for these four stations are also attached in Appendix 4. Electricity to power the remaining three stations is either paid by participating partners (e.g. ESER Program contractor, 2), or it is a solar powered station (1).

DOE-ID maintains an access and license agreement with the City of Idaho Falls for the meteorological station in Idaho Falls (Appendix 5). Electricity for this station is paid by the City. DOE-ID also maintains a no-cost access agreement with the Bureau of Land Management for Cox's Well. Electricity for this station is provided by solar power.

Gonzales-Stoller Surveillance maintains leases for three of the meteorological stations located at middle schools that are part of the Community Monitoring Program and Blue Dome. Electricity for these stations is paid by the host school or by Gonzales-Stoller Surveillance. Documentation for the leases and electricity are on file with Gonzales-Stoller Surveillance.

Land for the remaining four stations is provided by state, federal, or tribal organizations. Electricity for two stations is paid by the landlord; the other two stations are solar powered.

Another cost incurred by NOAA is for a rental vehicle that is used to service the meteorological

stations. NOAA leases a GSA utility truck to carry parts, equipment, and personnel to the various meteorological stations. This vehicle is used almost exclusively for support of the IAG.

An Interconnection Service Agreement (ISA) between NOAA and DOE-ID, dated August 11, 2011, specifies that DOE-ID through the INL contractor will provide NOAA with a connection to the Internet (Appendix 6). This connection will assist NOAA in accomplishing the purposes of this statement of work, such as NOAA/INL Mesonet data distribution. In addition, the ISA provides for management of the NOAA firewall by the INL contractor. The ISA further states that “adequate funding has been allocated by (DOE-ID) means of this contract to support the necessary work required for implementation and ongoing maintenance and operation (M&O) supporting the NOAA firewall, remote access/registration, and Internet connectivity.” DOE-ID provides funding to the INL contractor to perform the services identified in the ISA, which are estimated to cost approximately \$15,000 per year. This will be a recurring annual cost for the duration of the IAG and is funded and tracked separately from the other services provided by the INL contractor.

Access to the NOAA building has been managed by the INL contractor for at least 28 years. This service has been provided entirely without cost to NOAA and includes: 1) building key control, 2) after-hours door alarms monitored by WCC, and 3) occasional patrols of the parking lot by INL security. This service helps to secure sensitive NOAA equipment that is critical for the execution of this agreement. Furthermore, this security posture has been approved in regular building security audits and site visits required and provided by the NOAA Office of Security (OSY). This statement of work formalizes and continues NOAA building access as described for the life of the interagency agreement.