

FS Agreement No.	10-MU-11242307-009
Cooperator Tax ID No.	
Cooperator Agreement No.	MOU-UTB-2009071
	11/3/09

**MEMORANDUM OF UNDERSTANDING  
BETWEEN THE  
FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE  
NORTHERN RESEARCH STATION  
AND THE  
UT-BATTELLE, LLC**

This **MEMORANDUM OF UNDERSTANDING** is hereby entered into by and between the U.S. Forest Service, Northern Research Station, hereinafter referred to as the Forest Service, and UT-Battelle, hereinafter referred to as the Cooperator.

**A. PURPOSE:**

This MOU is being developed to provide the operational basis for a multi-year cooperative interaction between UT-Battelle and the USFS. The MOU will facilitate a collaborative experiment between UT-Battelle and the USFS to evaluate Spruce-Peatland Responses Under Climatic and Environmental Change (the SPRUCE experiment) at the USDA Forest Service's Marcell Experimental Forest.

**B. STATEMENT OF MUTUAL BENEFIT AND INTERESTS:**

The development of the research program will be led by Oak Ridge National Lab (ORNL) scientists in conjunction with scientists at the Forest Service Lab in Grand Rapids, MN. Tentative areas of research have been outlined between the two institutions (see attached proposal) and collaborations among individual scientists are developing. The development of study plans, the execution of the research, and the sharing of data will be done jointly between the two institutions. Publications resulting from the research will be co-authored by all participants involved in one or more of the preparation, conceptualization, and data collection of material covered in a given document.

**C. SCOPE OF WORK:**

Access to the Experimental Site

The United States Government through the United States Department of Agriculture Forest Service's Northern Research Station manages the Marcell Experimental Forest through a long term agreement with the Chippewa National Forest. The experimental site chosen for this activity is located in the S1 watershed and represents a second growth spruce forest appropriate for the manipulative research program. The USFS agrees, pending all necessary approvals described below, to provide access to the S1 watershed and adjacent upland areas over the multiple year study period.



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### Research Schedule

Coordinated multi-year activities subject to the sustained availability of research funding from the DOE and the USFS will begin Oct. 1, 2010. The activities will include a 3-year installation, construction and pre-treatment measurement period, a 10-year period of experimental operation, and a post-treatment measurement and site decommissioning effort.

Before any experimental activities begin, UT-Battelle and USFS NEPA specialists will develop a plan for NEPA approval for the SPRUCE experiment. Based on the size and complexity of the experiment, the completion of an Environmental Assessment is anticipated.

Research Safety requirements of the DOE and USFS will be evaluated and reconciled and appropriate safety plans will be developed for application to each phase of this activity before onsite work commences. As a part of the safety protocols, UT-Battelle staff will be trained and approved in general USFS safety procedures and requirements for field activities on the Marcell Experimental Forest. For activities and operations conducted at ORNL, USFS's employees, staff and assignees will follow UT-Battelle's environment, safety, health and security requirements and procedures. Research activities must be performed under a Research Safety Summary approved by UT-Battelle.

### Experiment Data Policy and Authorship

Data sharing policies will be consistent with related DOE programs (e.g., <http://www.er.doe.gov/OBER/CCRD/per.html>). Open sharing of all research data is critical to advancing the program's mission and the philosophy of the SPRUCE experimental research group will be to actively archive and document experimental data sets, and make them available for immediate use within the experimental working group, and to the broader research community within 1 year of their publication.

#### Specific terms of the SPRUCE experiment data sharing policy are as follows:

Following publication of research results, a copy of underlying data and a clear description of the method(s) of data analysis must be provided to any requester in a timely way.

Following publication of modeling methods or results, a copy of model code, parameter values, and/or any input dataset(s) must be provided to any requester in a timely way, and recognition of program data sources, either through co-authorship or acknowledgments within publications and presentations, is required.

### Primary MOU Research Contracts and On-site Research Staff

Each institution will provide one primary contact for management of the MOU and oversight of the SPRUCE Experiment. Dr. Paul J. Hanson (UT-Battelle) and Dr. Randall K. Kolka will serve in these roles at the inception of the interaction. If they are no longer able to



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fulfill these roles in the future, their respective institutions will provide a suitable replacement.

UT-Battelle intends to locate one or more full-time employees in the Grand Rapids area for on-site coordination of operation and research activities. These individuals will have the necessary scientific and technical expertise to organize and operate the complex experiment system and be authorized to make initial judgments about unplanned operational and site access contingencies.

Local USFS staff will work in conjunction with UT-Battelle on site and visiting staff to operate and maintain the experiment. The USFS intends to commit in kind support for experimental maintenance and research objectives. This support may include providing new scientific expertise, a research coordinator and a research technician.

**D. FOREST SERVICE SHALL:**

1. Assume responsibility for upgrades and maintenance of roads necessary for year-round access to the experiment facilities.
2. Provide office space at USFS facilities accomplished under a separate lease agreement with UT-Battelle for up to 2 full-time employees or visiting scientists.

**E. COOPERATOR SHALL:**

1. Provide the necessary funding to survey, prototype, engineer, install, construct, maintain and operate the SPRUCE experimental infrastructure.
2. Provide the USFS with funding for subcontracted upgrades to the local power grid in support of the SPRUCE experiment.
3. Provide funding to the USFS to pay for electrical system upgrades under its guidance. UT-Battelle will directly pay for local utility costs once the electrical systems are operational.
4. Provide funding to develop limited open areas adjacent to the experimental sites to allow for temporary buildings, parking, electrical and on-site storage of propane.
5. Provide bottled water, and leased portable sanitary facilities at the experimental site in support of all staff working on the SPRUCE experiment.
6. Contract locally and provide for the removal of trash.
7. Provide leased office and storage buildings at the experimental site. These facilities will include heating and cooling systems, land-line telephones for voice communications



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and emergency response, satellite internet connections for data, and e-mail communications.

8. Provide for the ultimate removal, disposal or transfer of the open top chambers or the experimental infrastructure at the conclusion of the experiment.

**F. IT IS MUTUALLY AGREED AND UNDERSTOOD BY ALL PARTIES THAT:**

1. FREEDOM OF INFORMATION ACT (FOIA). Any information furnished to the Forest Service under this instrument is subject to the Freedom of Information Act (5 U.S.C. 552).
2. PARTICIPATION IN SIMILAR ACTIVITIES. This instrument in no way restricts the Forest Service or the Cooperator(s) from participating in similar activities with other public or private agencies, organizations, and individuals.
3. RESPONSIBILITIES OF PARTIES. The Department of Agriculture and (insert name of other party or parties) and their respective agencies and offices will handle their own activities and utilize their own resources, including the expenditure of their own funds, in pursuing these objectives. Each party will carry out its separate activities in a coordinated and mutually beneficial manner.
4. PRINCIPAL CONTACTS. The principal contacts for this instrument are:

a. FOREST SERVICE TECHNICAL REPRESENTATIVE(S):

FS Technical Representative:	Dr. Randy Kolka
Forest Service Organization:	NRS-07
Street Address:	1831 Hwy 169 E.
City, State & Zip:	Grand Rapids, MN. 55744
Telephone:	218-326-7115
Fax:	218-326-7123
Email:	rkolka@fs.fed.us

b. FOREST SERVICE ADMINISTRATIVE CONTACT:

Forest Service Contact:	Dave Garrison Grants and Agreements Specialist
Forest Service Organization:	Northern Research Station, AQM G&A
Street Address:	1992 Folwell Avenue
City, State & Zip:	Saint Paul MN 55108-
Telephone:	651-649-5206
Fax:	651-649-5285



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Email:	davidgarrison@fs.fed.us
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c. COOPERATOR'S TECHNICAL REPRESENTATIVE(S):

Principal Investigator:	Dr. Paul Hanson
Department/Unit:	Environmental Sciences Division
Cooperator Name:	UT-Battelle, LLC
Street Address/PO Box:	1 Bethel Valley Road, Building 1062
City, State & Zip:	Oak Ridge, TN 37831-6422
Telephone:	865-574-5361
Fax:	865-576-9939
Email:	hansonpj@ornl.gov

d. COOPERATOR'S ADMINISTRATIVE CONTACT:

Name, Title:	Kendall Nicole English, Certified Paralegal
Department/Unit:	Legal Directorate
Cooperator Name:	UT-Battelle, LLC
Street Address/PO Box:	1 Bethel Valley Road, Building 5002
City, State & Zip:	Oak Ridge, TN 37831-6422
Telephone:	865-241-2049
Fax:	865-241-4456
Email:	inglishkn@ornl.gov

5. NON-FUND OBLIGATING DOCUMENT. Nothing in this MOU shall obligate either the Forest Service or the Cooperator to obligate or transfer any funds. Specific work projects or activities that involve the transfer of funds, services, or property among the various agencies and offices of the Forest Service and the Cooperator will require execution of separate agreements and be contingent upon the availability of appropriated funds. Such activities must be independently authorized by appropriate statutory authority. This MOU does not provide such authority. Negotiation, execution, and administration of each such agreement must comply with all applicable statutes and regulations.
6. EXPORT CONTROL. Each Party acknowledges that it is responsible for its own compliance with all U.S. export control laws and regulations; and each party acknowledges it will not knowingly export directly or indirectly, through its affiliates, licensees, or subsidiaries, any export controlled hardware, software, or technical data in the performance of this MOU without a required license/authority which will be obtained by the responsible Party from the appropriate U.S. authority.
7. COMMENCEMENT/EXPIRATION/TERMINATION. This MOU takes effect upon the signature of the Forest Service and the Cooperator and shall remain in effect for 5 years from the date of execution. This MOU may be extended or amended upon written request



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of either the Forest Service or the Cooperator and the subsequent written concurrence of the other(s). Either the Forest Service or the Cooperator may terminate this MOU with a 60-day written notice to the other(s).

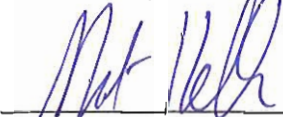
8. ESTABLISHMENT OF RESPONSIBILITY. This MOU is not intended to, and does not create, any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, by a party against the United States, its agencies, its officers, or any person.
9. AUTHORIZED REPRESENTATIVES. By signature below, the cooperator certifies that the individuals listed in this document as representatives of the cooperator are authorized to act in their respective areas for matters related to this agreement.

**F. SIGNATURES:**

The parties hereto have executed this memorandum of understanding as of the last date written below.

  
 \_\_\_\_\_  
 DAVID GARRISON  
 Grants and Agreements Specialist  
 USDA FS, Northern Research Station

11/03/09  
 \_\_\_\_\_  
 Date

  
 \_\_\_\_\_  
 MARTIN KELLER  
 Associate Laboratory Director  
 Biological and Environmental Sciences  
 UT-Battelle, LLC

11/11/09  
 \_\_\_\_\_  
 Date

The authority and format of this instrument has been reviewed and approved for signature.

  
 \_\_\_\_\_  
 DAVID GARRISON  
 Northern Research Station  
 Grants & Agreements Specialist

11/03/09  
 \_\_\_\_\_  
 Date

