United States Department of Agriculture **Forest Service** **Pacific Northwest Research Station**

Pacific Wildland Fire Sciences Laboratory
400 N. 34th, Suite 201
Seattle, Washington 98103
Phone (206) 732-7800
FAX (206) 732-7801

File Code: 4400
Date: May 27, 2007

Dr. John Cissel
JFSP Manager
Joint Fire Science Program
National Interagency Fire Center
3833 S. Development Ave.
Boise, ID 83705

Dear John,

I am please to present the final report for the Joint Fire Science Project JFSP 03-1-3-08 entitled: **"Forest Floor Consumption and Smoke Characterization in Boreal Forested Fuelbed Types of Alaska"**. The report contains an abstract, introduction, methods, result by task, deliverables, and a table of actual and proposed deliverables. A CD has been attached with a copy of the report, cover letter, Consume 3.0 download, and photos.

If you have questions or additional information is needed to satisfy the project deliverables, do not hesitate to contact me.

Sincerely,

ROGER D. OTTMAR
Research Forester

Table 11. Comparison of proposed and actual deliverables.

Proposed	Delivered	Status
SOFTWARE Complete fuel consumption and emissions module and upload onto website for implementation into fuel consumption and fire effects software	http://www.fs.fed.us/pnw/fera/research/smoke/consume/	Done
EQUATION Complete moisture algorithm.	Weather stations and moisture sensors were positioned on the Kenai and east of Tok, Alaska. However, failure of sensors and limited ability to transmit data in remote areas did not enable reliable data collection and this portion of the study was terminated. The remaining effort was directed toward capturing 4 additional forest floor consumption and emissions data sites.	Terminated
SOFTWARE Program into Consume 3.0 and FEPS (EPM vs 2)	http://www.fs.fed.us/pnw/fera/research/smoke/consume/	Done
PUBLICATION Complete moss/duff consumption and emissions paper for submission as a research paper or journal article	Consumption trial data and emissions information have been summarized and analyzed. A PNW research paper, and journal article (*International Journal of Wildland Fire*) on these topics are in preparation and will be forwarded to the Board when complete.	In progress; January 2008
PUBLICATION Complete journal article paper on moisture algorithm and deployment protocols for moisture meter	Weather stations and moisture sensors were positioned on the Kenai and east of Tok, Alaska. However, failure of sensors and limited ability to transmit data in remote areas did not enable reliable data collection and this portion of the study was terminated. The remaining effort was directed toward capturing 4 additional forest floor consumption and emissions data sites.	Terminated
PUBLICATOION JFSP progress reports	JFSP progress reports were completed for each year starting in 2003 and ending in 2005	Done
EQUATION Forest floor consumption algorithm for boreal forest fuelbed types	Developed August 2005. Ottmar, Roger D.; Baker, Stephen P. 2007. Forest floor consumption and smoke characterization in boreal forest fuelbed types of Alaska. Final report to the Joint Fire Science Program.	Done

Table 12. Deliverables exceeding the scope of the JFSP proposal.

Publication	Ottmar, R.D. and Sandberg, D.V. 2003. Predicting forest floor consumption from wildland fire in boreal forests of Alaska – preliminary results. In: Galley, K.E.M.., Klinger, R.C., Sugihara, N.G. (eds). Proceedings of Fire Conference 2000: The First National Congress on Fire Ecology, Prevention, and Management. Misc. Pub. 13. Tallahassee, FL: Tall Timbers Research Station: 218-224.
Publication	Joint Fire Science Program. 2005. Rapid response enables additional forest floor consumption and smoke characterization sampling in boreal forests of Alaska. September 2004. http://jfsp.nifc.gov/news/doc/highlight9-04.pdf. (22 January 2007)
Website	Updated Consume User's manual, on-line help, and tutorial
Presentation	Forest floor consumption equation was presented to 20 participants as part of a 3-day train-the-trainer workshop in Fairbanks, AK August 15-17, 2006.
Presentation	Forest floor consumption equation was presented to 60 participants as part of a 4-day RX 310 training session in Fairbanks, AK September 15-17, 2006.
Presentation	The study preliminary results were presented to 120 participants as part of the Alaska Annual Fire Staff meeting, Anchorage, AK October 18, 2004.
Presentation	Ottmar, R.D. 2005. Forest floor consumption and smoke characterization in boreal forest fuelbed types of Alaska. Progress report. Annual Meeting, Joint Fire Science Program, 1–3 November 2005, San Diego, California.
Presentation	Otttmar, Roger D. 2005. Forest floor consumption and smoke characterization in boreal forest fuelbed types of Alaska.. Presentation to the Joint Fire Science Program Governing Board. September.
Presentation	Presentation at the Society of American Foresters annual meeting, Fort Worth Texas, October, 2005 on the study protocols and preliminary results.
Demonstrations	Fifteen Consume 3.0 demonstrations at RX 410 (Smoke Management), RX 300, (Burn Boss), RX 310 (Fire Effects) national and regional training sessions, and at 3 Technical Fire Management modules.