

PRESCRIBED FIRE LIABILITY INSURANCE

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INTRODUCTION

Agren, Inc. partnered with the Iowa Department of Natural Resources-Bureau of Forestry (DNR) and the USDA Risk Management Agency to prevent, control and suppress wildfires through the development of an insurance product. The purpose of the risk management tool is to reduce the liability of private contractors and non-governmental organizations (NGOs) when conducting prescribed fires. The initiation of this project follows a National Fire Plan (USDA Forest Service 2002) mandate that federal agencies increase their prescribed burning activities through private sector contracts.

The insurance industry has been reluctant to enter into the prescribed fire liability insurance market because of a perceived high degree of risk. The fear of liability is the most significant barrier to the application of prescribed fire by private landowners. Additionally, prescribed fire contractors' willingness to burn has been decreased by the lack of availability and high cost of liability insurance. A study considering nine different options to mitigate the risks of prescribed fire (Agren, Inc. 2002) concluded that insurance covering prescribed burns is not readily available to the private sector, and liability concerns have forced many small private businesses to discontinue their prescribed fire services. As a result, the demand for prescribed fire services cannot be met because of the shortage of insured private burn contractors.

In 2002, Agren, Inc. and DNR responded to a Request for Application from the USDA-Risk Management Agency (RMA) Federal Crop Insurance Corporation to research and develop risk management tools to prevent, control, or suppress wildfires. The RMA subsequently entered into a partnership agreement with DNR to research and develop a prescribed fire liability insurance product for private contractors and NGOs that use prescribed fire. As primary contractor, Agren, Inc. initiated a two-phase process to gather actuarial data and develop a model insurance policy. The purpose of the project is not to commit insurance companies to provide insurance for prescribed fire, but rather to provide the necessary actuarial data to help insurance companies rate a prescribed fire insurance policy. The project will conclude in September 2007.

This paper describes Phase I of the two phase process. During Phase II, Agren, Inc. will use data gathered in Phase I to generate a model policy. Additionally, Agren, Inc. will provide the actuarial data to insurance companies to advance the development and implementation of a market-based, general liability policy.

METHODS

Prescribed Fire Liability Insurance Expert Panel

A Prescribed Fire Liability Insurance Expert Panel Review was convened in January 2003 as the first step in gathering information to write and rate a liability insurance policy for prescribed fire contractors. Risk management experts in fire, economics and insurance worked for two days with contractors and non-governmental organizations to identify barriers and potential solutions to offering an accessible liability policy.

Written Survey

Following the panel review, Agren, Inc. conducted a mail survey (Dillman 2000) of 460 potential prescribed burners in eight states (Oregon, Texas, Florida, Oklahoma, Missouri, Iowa, Wisconsin and Minnesota) to collect data on the frequency of fire escapes and smoke claims. The survey process included posting pre-survey letters, an initial survey mailing, a follow-up postcard, and a second survey mailing. Survey respondents who indicated an escape or smoke-related incident in the past five years were asked to provide contact names and telephone numbers to be included in a follow-up telephone survey.

Telephone Survey

Fifty-five businesses reporting fire escapes and/or smoke claims in the mail survey were contacted to provide further information about the severity of losses from the reported incidents. Iowa State University's Center for Survey Statistics and Methodology (Center) was contracted to collect data. A telephone questionnaire was provided to the Center by Agren, Inc. The questionnaire was programmed using Blaise software and tested for accuracy by Center staff. The Center was responsible for recruitment, training and supervision of telephone interviewers; and telephone interviewers were trained in computer-assisted telephone interviewing (CATI) techniques. The CATI software was programmed to include edit checks to detect illegal values and logic errors as responses were entered into the computer during the interview.

Data Analysis

The written survey data were analyzed to predict the number of escapes using several count data models including Poisson, negative binomial and single-parameter count data models (Mitchell et al. 2006). The telephone data were analyzed to estimate the probability and magnitude of property damage resulting from the escaped fire. Because most escapes resulted in no damage, the data were severely censored at zero; a double hurdle model was used (Cragg 1971; Greene 2005).

RESULTS AND DISCUSSION

Results of the Expert Panel Review indicate the most prominent barriers to writing an insurance policy for prescribed burn activities include: 1) no central clearinghouse for prescribed fire data; 2) lack of prescribed fire data from the private sector to drive complex fire/smoke behavior models; 3) lack of trained personnel to implement fire/smoke behavior models for risk identification; and 4) lack of nationally consistent and accessible training and certification standards for private burn contractors.

Additionally, the Expert Panel Review discussed methods to reduce the insurer's risk of loss. Alternatives which garnered the most support include 1) require quality burn plans; 2)

develop a mechanism for implementing national training standards; and 3) consider varying insurance premium and coverage by condition class of the burn site. Other notable findings from the Expert Panel review include: 1) each State may need to develop individual certification programs to access insurance because of differing state negligence and liability laws; and 2) it may be feasible for insurance companies to use Federal prescribed fire data as a proxy for private loss frequency and severity when that data is unavailable.

Analysis of mail survey results yielded valuable information on the frequency of escape and smoke related incidents. For the purpose of this discussion, frequency is defined as the number of times a particular event occurs in a given period of time. Frequency is one of two primary factors used to evaluate and underwrite insurance risk. Frequency results can best be presented by defining impacts of certain variables relative to a base case. The base case was constructed using the most common responses to each survey question to characterize a “typical” prescribed burner. Using this method of analysis, the following imply a significantly lower frequency of escapes:

- Midwest and West regions relative to the South
- Contractors specializing or relying substantially on prescribed burns for revenue relative to firms earning 25% or less of revenue from prescribed fire activities
- Contractors who provide professional prescribed fire consultation or training as 5 % or more of revenue relative of those who do not
- Lead crew member has National Wildfire Coordinating Group’s Burn Boss II designation relative to not having the Burn Boss II designation
- Contractors with an annual revenue ranging from \$250,000 to \$1,000,000 relative to those less than \$250,000 annual revenue
- Contractors that conduct more than 50 % of burns in the wildland-urban interface relative to those who conduct less than 50 %

The fuel type (grass, brush, slash, or timber) had a significant impact on the number of expected escapes. Firms conducting more burns in brush have a lower expected number of escapes, while those doing so in grass and slash have a greater number of escapes. Slash is particularly prone to escapes, since piles of logging residues often continue to smolder for days and can flare up later causing an escape.

Preliminary results from the analysis of the telephone survey data on the extent and severity of property damage from escaped fires has identified several factors that determine the probability and magnitude of losses. The double hurdle analysis implies that the probability of a loss for a company conducting prescribed burns is lower if

- The company has less than \$250,000 in gross annual income
- The company does not conduct burns in the South
- The burn boss has more than 10 years of fire suppression experience.

The double hurdle analysis implies that the magnitude of losses for a company conducting prescribed burns is lower if

- The experience level of the crew is excellent or very good
- The company does not burn in the South
- Less than a third of the company’s burns occur in a primary fuel type of grass, slash or timber.

The results from this statistical analysis will be used to develop a premium structure for an actuarially fair policy. In addition, the survey data and summary statistics, and a full technical description of the statistical analysis will be distributed to support and encourage insurance companies considering offering a liability policy for prescribed burners.

SUMMARY AND CONCLUSION

A comprehensive general liability policy with endorsements to cover prescribed burners will be the most likely policy. The annual policy would have an annual and aggregate limit. Private contractors may prefer one comprehensive general liability policy that covers the full range of business activities including prescribed burns. Underwriting issues, such as certification, would determine if coverage would be offered to individual contractors. Insurance premiums are typically set nationally and then adjusted accordingly from state to state. Therefore, individual state laws will have an impact on insurance premiums.

Some states currently have certified burn manager programs authorized by state law but it is unclear how well these state programs mesh with national programs. There are other certification programs such as the National Wildfire Coordinating Group (NWCG), but these courses have not been widely available to private contractors. If certification and/or training became criteria for insurability, then the insurance company would request proof of completion. However, the mechanisms for tracking intrastate certification or training standards are not in place at this time.

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