

NORTH SHORE KENAI LAKE PRESCRIBED FIRE

Review



**USDA FOREST SERVICE
Chugach National Forest**

July 8, 2001

EXECUTIVE SUMMARY

The North Shore Kenai Lake Prescribed Fire on the Seward Ranger District, Chugach National Forest ignited on June 15, 2001, and escaped the burn unit on June 25, 2001, and was declared a wildland fire. On June 29th, 2001, the Acting Regional Forester for the Alaska Region elected to conduct a review of this prescribed fire and assembled a team of federal, state, local, and non-profit fire professionals from throughout the United States.

Specific objectives for the review were:

- ❑ Determine if the Alaska Region's prescribed fire policies meet National standards.
- ❑ Determine if the Alaska Region's prescribed fire standards and procedures are adequate.
- ❑ Determine if the burn plan was satisfactory.
- ❑ Determine if the prescribed fire was conducted in accordance with the plan.
- ❑ Advise the Alaska Region on alternative methods to deal with the landscape-scale forest health issues on the Kenai Peninsula.

The team developed a report that details Findings and Recommendations. Major findings include:

- ❑ The Alaska Region's prescribed fire policies contained in Forest Service Manual FSM 5140 are outdated (issued in 1992 while national manual was issued in 1999).
- ❑ The Alaska Regional manual supplement describing Delegation of Burn Plan Approval Authority is not consistent with national direction. The regional supplement does not describe the "requisite" qualifications and experience requirements for District Rangers. The Forest Prescribed Fire Guidelines are outdated. The Chugach National Forest and the Seward Ranger District need to work to improve their internal coordination and external interagency cooperation and communication.
- ❑ Several inadequacies were found in the Site Specific Burn Plan development.
- ❑ Insufficient dedicated resources were available to assist in prescribed fire implementation.
- ❑ All available fuel condition and fire behavior prediction tools were not utilized in the prescribed fire decision-making process.
- ❑ Interagency/cooperative partnerships for planning and implementing hazardous fuel reduction projects statewide regardless of land ownership patterns are critical to successful prescribed fire use.

INTRODUCTION and BACKGROUND

As part of the Seward Ranger District (SRD), USDA Forest Service Chugach National Forest (CGF), fuel treatment program, a prescribed fire was planned for a portion of the north side of Kenai Lake in south-central Alaska. This burn was planned in an area that has been subject to an on-going Spruce Bark Beetle infestation. This infestation has escalated from an endemic to epidemic scale in south-central Alaska. This epidemic has been responsible for nearly complete White Spruce mortality on over three million acres of forest throughout the state and 1.4 million acres on the Kenai Peninsula area since the mid- to late 1980s.

The objectives of the North Shore Kenai Lake Prescribed Fire were to reduce hazardous fuel accumulations resulting from the beetle infestation and to improve wildlife habitat. This application is guided by the following land and resource management planning documents for the Chugach National Forest and Seward Ranger District: Chugach Forest Plan, Kenai Peninsula Spruce Bark Beetle Management Strategies and Five-Year Action Plan, Moose Pass Cooperative Project Environmental Assessment, and Fire Management Plan - Chugach National Forest. The detailed implementation procedures were described in the Site Specific Burn Plan for North Shore Kenai Lake #19 A-C, F, and the Site Specific Burn Plan for North Shore Kenai Lake #20 A-P, 21A.

Prescribed fire is one of several accepted practices for hazard fuel reduction and other resource management purposes utilized routinely and successfully by federal, state, and private agencies. Currently, the National program averages 4000 - 4800 prescribed fires completed per year for federal agencies nationwide. Over 99% of these federal prescribed fires do not escape. Data for private organizations such as The Nature Conservancy show comparable success rates. Figure 1 shows the prescribed fire accomplishments for federal wildland fire management agencies in the United States since 1993.

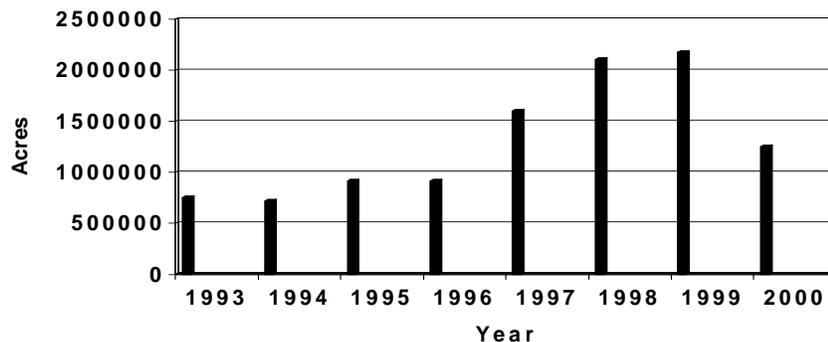


Figure 1. Federal wildland fire management agencies prescribed fire accomplishments, 1993 - 2000.

From October 1, 2000, through June 25th, 2001, federal wildland fire management agencies have completed 2,582 prescribed fires for 1,021,519 acres. Six of these prescribed fires were reclassified to wildland fires. This reclassification can occur whenever observed fire characteristics no longer meet the prescription parameters in the burn plan or as a result of other management concerns.

The North Shore Kenai Lake prescribed fire was initiated on June 15th, 2001. Following completion of the ignition of the planned burn units, the prescribed fire area was monitored and patrolled over the next 10 days in accordance with the burn plan. Although spotfires were a problem from the very beginning of the fire operations, holding crews were able to control them until June 25. The Tazlina Hotshot crew was dispatched to another fire at 1300 hours on June 25th. Late on the evening of June 25th, new spotfires were detected outside the burn unit. Increasing winds caused the spotfires to spread beyond the management capability of local firefighting resources. Agency officials declared the prescribed fire a wildland fire on June 25th, 2001, and an Interagency Incident Management Team was requested early the next morning to manage the fire.

The prescribed fire and general vicinity are shown in Figure 2.

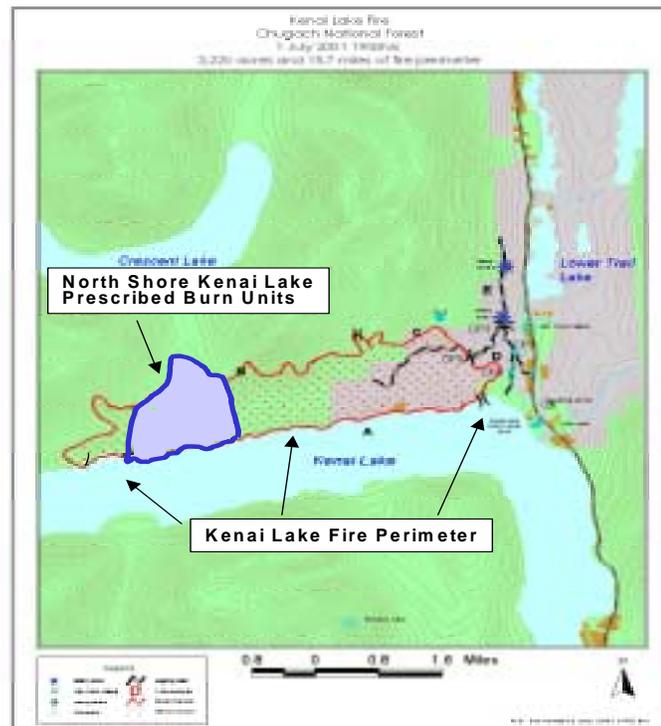


Figure 2. General vicinity map for the North Shore Kenai Lake Prescribed Fire.

On June 29th, 2001, the Acting Regional Forester for the Alaska Region elected to conduct a review of the North Shore Kenai Lake Prescribed Fire on the Seward Ranger District, Chugach National Forest. A team of federal, state, local, and non-profit fire professionals from throughout the United States was assembled.

Specific objectives for the review were:

- Determine if the Alaska Region's prescribed fire policies meet National standards.
- Determine if the Alaska Region's prescribed fire standards and procedures are adequate.
- Determine if the burn plan was satisfactory.
- Determine if the prescribed fire was conducted in accordance with the plan.
- Advise the Alaska Region on alternative methods to deal with the landscape-scale forest health issues on the Kenai Peninsula.

This review team addressed these objectives in this report. This report consists of descriptions of background information concerning the prescribed fire, the review team process, findings and recommendations, and conclusions.

REVIEW TEAM and PROCESS

Members of the Review Team included:

Abel Camarena	Team Leader	Deputy Regional Forester, State and Private Forestry	USDA Forest Service, Southwestern Region Albuquerque, New Mexico
Tom Zimmerman	Team Member	Fire Science and Ecology Program Leader	USDI National Park Service, National Interagency Fire Center, Boise, Idaho
Ed Brunson	Team Member	Fire Program Manager	The Nature Conservancy Arizona Chapter Tucson Arizona
Pat Kidder	Team Member	State Fire Management Officer	USDI, Bureau of Land Management, State of California Sacramento, California
Joe Stam	Team Member	Chief of Fire and Aviation	State of Alaska Division of Forestry, Anchorage, Alaska
Patti Hiram	Team Member	Fire Air Quality Specialist	USDA Forest Service, Fire and Aviation Management Washington, D.C.
Bob Bright	Team Member	Director of Planning	Kenai Peninsula Borough Soldotna, Alaska
Nikki Dyke	Team Member	Assistant Fire Staff	USDA Forest Service, Payette National Forest McCall, Idaho

The Review Team was convened on July 6, 2001 at 8:00 am in the Conference Room of the USDA Forest Service, Chugach National Forest, and Anchorage, Alaska. The Alaska Region Fire Management Staff, the Acting Regional Forester for the Alaska Region, and the Chugach National Forest Supervisor, briefed the team. Incident Commander, Paul Hefner also briefed the team and Deputy Incident Commander, Dave Dash from the Incident Management Team that managed the fire after it was declared a wildland fire on June 25, 2001. The team then completed an overflight of the Kenai Peninsula to observe directly the magnitude and severity of the Spruce Bark Beetle infestation in this area and to gain a better perspective of the fuels, terrain, and general situation associated with the Kenai Lake Prescribed Fire. Following the overflight, the team talked with staff members of the Seward Ranger District who were involved with the planning and

implementation of the prescribed fire. On July 7th and 8th, the team met at the Chugach National Forest Supervisor's Office and reviewed all relevant documents and developed this report.

COMMENDATIONS

All personnel involved during the prescribed fire for their dedication and hard work.

All personnel involved with the implementation of the prescribed fire for their outstanding safety record.

The Alaska Region for initiating a timely review of this prescribed fire and commitment to strengthening their prescribed fire program.

The Alaska Region and the Chugach National Forest for timely logistics support for the review team.

Personnel from the Kenai/Kodiak Area and Coastal Region of the Alaska Division of Forestry for their support during the prescribed fire.

FINDINGS and RECOMMENDATIONS

OBJECTIVE: DETERMINE IF THE ALASKA REGION'S PRESCRIBED FIRE POLICIES MEET NATIONAL STANDARDS.

Finding: The Alaska Region Forest Service Manual FSM 5140 supplement (completed in 1999) is outdated, which affects the Forest Prescribed Fire Guidelines (completed in 1997) contained in the Chugach National Forest Fire Management Plan (completed in 2001).

Recommendation:

- ❑ Revise the Regional FSM 5140 supplement and the Forest Prescribed Fire Guidelines to be consistent with the Forest Service National manual and the Federal Fire Policy.

Finding: Implementation of the National Fire Plan has created performance expectations in field personnel leading to stresses from:

- ❑ unprecedented high acreage targets for hazardous fuels reduction;
- ❑ using prescribed fire as an expedient treatment solution;
- ❑ limited timeframes for accomplishment;
- ❑ competing resource management priorities,
- ❑ higher public expectation for insuring safety and protecting property, and
- ❑ uncertainty of continued out-year funding and program support.

Recommendation:

- ❑ Top leadership must promote an environment for intelligent and responsible decision making in the implementation of the National Fire Plan, especially where prescribed fire is the proposed treatment method. Employees must feel agency commitment, endorsement, and support to "do the right thing" and "do the thing right" regardless of compelling circumstances.

OBJECTIVE: DETERMINE IF THE ALASKA REGION'S PRESCRIBED FIRE STANDARDS AND PROCEDURES ARE ADEQUATE.

Finding: The Alaska Regional manual supplement describing Delegation of Burn Plan Approval Authority is not consistent with the national direction. The regional supplement does not describe the “requisite” qualifications and experience requirements for District Rangers.

Recommendation:

- ❑ Update the Regional supplement for Delegation of Burn Plan Authority. Clarify the delegation authority for prescribed fire plan approval, specify what complexity levels of burns can be delegated and what qualifications the delegated official must have. Update the Forest Delegation of Authority.

Finding: As the District implemented the prescribed fire; back up personnel to fill critical positions were non-existent. The District’s ability to train, get experience, keep current fire and resource personnel to plan and implement prescribed burns is limited. This is due to limited prescribed fire activity, lack of interagency involvement and recognition of the potential workload.

Recommendation:

- ❑ The Forest and District should use red-carded Borough, State, Volunteer Fire Departments and other Federal Agencies to support planning and implementation of prescribed fire. The district needs to support other agencies’ activities by involving its personnel in cooperating agency projects to build experience and training.

Finding: Coordination with other agencies and organizations (federal, state, municipal, and private) regarding fuel treatment planning, timing, and scheduling is lacking.

Recommendation:

- ❑ The Chugach National Forest must collaborate with other federal and state cooperators, private organizations, and the public to develop a coordinated, comprehensive fuel treatment program that utilizes the full array of treatment alternatives across jurisdictional boundaries.

Finding: There was a significant gap between SRD and cooperating local government, state, and other federal agencies in communications about the prescribed fire. This included all phases from the pre-burn planning process, burn plan implementation, to the escape and subsequent wildland fire.

Recommendations:

- ❑ SRD and CGF need to work together to develop comprehensive contact lists to ensure that all interested parties in the immediate vicinity and in surrounding areas are contacted in a timely manner with concise, accurate information on all phases of the prescribed fire program.
- ❑ A concerted effort must be made to inform and involve all of the local government, state, and other federal agencies that have an interest in the prescribed fire program. Involvement of these organizations, especially local residents, will improve the dissemination of information and reduce the misinformation propagation that occurred during the North Shore Kenai Lake Prescribed Fire.

Finding: The SRD personnel felt that according to direction in FSH 5109.34 they could not use local government fire department personnel on the burn because of a lack of training and NWCG fire qualifications (red card) and the Forest Service restriction of not hiring Administratively Determined (AD) (emergency hiring) workers on prescribed fire.

Recommendations:

- ❑ In cooperation with the Division of Forestry, local government fire personnel should be trained and red carded to appropriate NWCG positions.

- ❑ The Forest Service should examine its policy of not allowing the use of AD hires in prescribed fire and change that policy if possible. If this policy cannot be changed, then work with the State of Alaska to obtain qualified and red-carded personnel to assist in prescribed fire activities.

Finding: SRD personnel felt that they could not utilize state personnel because of a problem with the current agreement between the Forest Service and the State of Alaska. This appears to be a perception problem as there is the opportunity to utilize state personnel under the current agreement.

Recommendation:

- ❑ The new State of Alaska – Forest Service Master Agreement should be finalized. The Annual Operating Agreement between CGF and the Division of Forestry, Coastal Region needs to be reviewed and updated prior to the 2002 fire season. Personnel at the district level should also be educated in the process for obtaining cooperating agency resources.

Finding: The Forest Prescribed Fire Guidelines specify an annual update for Appendix G, but this document has not been updated in four years.

Recommendation:

- ❑ Update Appendix G (Forest Prescribed Fire Guidelines) on an annual basis.

OBJECTIVE: DETERMINE IF THE BURN PLAN WAS SATISFACTORY.

Finding: The Forest Prescribed Fire Guidelines of the Chugach National Forest Fire Management Plan is identified as a required component of every Prescribed Fire Plan. This document was not attached to the North Shore Kenai Lake Prescribed Fire Plan or was otherwise discarded by some members of the burning team.

Recommendation:

- ❑ Every prescribed fire plan must contain all required parts or it is not compliant with forest policy.

Finding: The North Shore Kenai Lake Burn Plans identified the burns as “Complex”. The District Ranger approved these plans. Forest policy states that Complex burn approval is retained by the Forest Supervisor and not delegated to the District Rangers (see Chugach National Forest Fire Management Plan, Appendix E, Delegation of Authority for Prescribed Burn Plans).

Recommendation:

- ❑ Follow identified approval process for Complex prescribed burns requiring Forest Supervisor approval.

Finding: A perceived funding cap limited prescribed fire planning and implementation tactics.

Recommendation:

- ❑ Clarify funding capabilities, opportunities, and ability to use AD authorities, agreements, and other authorities to ensure that resources needed for prescribed burns are available.

Finding: Even though the prescribed fire complexity rating was identified in the burn plan, the review team found no evidence that a Prescribed Fire Complexity Rating as required by national policy was completed. Forest Service Manual 5142.1 Determining Prescribed Fire Complexity calls for the use of National Wildfire Coordinating Group (NWCG) Prescribed Fire Complexity Rating System Guide (NFES 2474) for the initial determination.

Recommendation:

- ❑ Use National Wildfire Coordinating Group (NWCG) Prescribed Fire Complexity Rating System Guide (NFES 2474) to rate prescribed fire complexity and includes complexity worksheet in all burn plans. Refer to using this guide in the Chugach Forest Fire Management Plan, and R-10 5140 manual supplement.

Finding: The same individual prepared, reviewed, and implemented the North Shore Kenai Lake Prescribed Fire Burn Plan.

Recommendation:

- ❑ Prescribed fire plans should receive a technical review by at least one additional individual with equal or higher prescribed fire qualifications. This individual cannot be directly associated with development of the plan.

Finding: All prescribed plans including aerial ignition require the review and approval of the Forest Aviation Officer. This procedure is outlined in Chugach National Forest Prescribed Fire Guidelines. The Forest Aviation Officer did not sign the North Shore Kenai Lake Prescribed Fire Burn Plans (#19 A-C, F and #20 A-P, 21A).

Recommendation:

- ❑ Follow existing forest policy for aerial ignition prescribed fire plans.

Finding: The site-specific burn plan does not list planned contingency resources as required by the Chugach National Forest Prescribed Fire Guidelines.

Recommendation:

- ❑ Follow contingency direction as outlined in section 13 of the Chugach National Forest Prescribed Fire Guidelines.

Finding: The district approved and implemented prescribed fire burn plans originally prepared in 1999. They were re-approved in 2001 with no substantial changes and no apparent application of the lessons learned from escaped prescribed fires in other parts of the country.

Recommendation:

- ❑ It is essential that the latest and best information be used in the development of prescribed fire burn plans to maximize probability of success and safe project implementation.

OBJECTIVE: DETERMINE IF THE PRESCRIBED FIRE WAS CONDUCTED IN ACCORDANCE WITH THE PLAN.

Finding: Insufficient firefighting and resource personnel were available to assist during the implementation of the Prescribed Burn. Specific individuals were assigned both prescribed fire and initial attack responsibilities.

Recommendation:

- ❑ The Forest and District must ensure initial attack capability is not compromised during prescribed fire implementation. Additional personnel were necessary to permit assignment of specific individuals to either prescribed fire activities or initial attack responsibilities. Potential assistance could be obtained from the State of Alaska, Division of Forestry or the local Volunteer Fire Departments. This could require training, equipment and Assistance for Hire Agreements for wildfire suppression and prescribed fire operations.

Finding: The decision making process surrounding the 2001 Kenai Lake Prescribed Fire was based significantly on the outcome of the 1999 Kenai Lake Prescribed Fire in the absence of a full understanding of the fire danger differences between the two years.

Recommendation:

- ❑ Establish a process that uses the appropriate fire danger and fire behavior system to challenge and verify intuitive judgments (the Canadian Forest Fire Danger Rating System is the standard used for most agencies in Alaska). Seasonal fire danger should be tracked using normal and extreme values, and should be used in the decision making process.

Finding: The burn was implemented on a day with weather predictions for humidity and temperatures on the dry and warm end of the approved burn prescription. Warm temperatures and low relative humidity conditions were predicted and continued to exist until the fire was declared a wildland fire. (Note: This statement has been found to be inaccurate and is corrected in the North Shore Kenai Lake Prescribed Fire Review Action Plan, Dated July 19, 2002)

Recommendations:

- ❑ The Chugach National Forest should, with its own staff and/or a team of fire behavior experts from cooperating agencies, utilize fire behavior predictive technology to develop new prescriptions for this fuel type.

OBJECTIVE: ADVISE THE ALASKA REGION ON ALTERNATIVE METHODS TO DEAL WITH THE LANDSCAPE-SCALE FOREST HEALTH ISSUES ON THE KENAI PENINSULA.

Finding: Coordination among Alaska agencies is very good for wildland fire suppression; however this coordination does not extend to prescribed burning situations.

Recommendation:

- ❑ The Alaska Wildland Fire Coordinating Group and other interested organizations should establish interagency/cooperator partnerships for planning and implementing hazardous fuel treatment projects on the Kenai Peninsula as an example to be expanded for the remainder of Alaska.

Finding: There are underutilized opportunities to join funds and efforts to address the bark beetle infestation on the Kenai Peninsula.

Recommendations:

- ❑ Explore all funding avenues and partners to maximize and leverage funds to treat hazardous fuels in a cooperative manner.
- ❑ Utilize the Kenai Peninsula Borough Fire Science Technical Committee as a potential vehicle to coordinate efforts and resources on the Kenai Peninsula.

Finding: This fire is an example of difficulties faced during implementation of landscape-scale prescribed fire applications. Proper means to measure and mitigate the social, environmental, and economic concerns and risks must be developed and applied by all agencies.

Recommendations:

- ❑ Federal, state, local, and non-government land managing agencies and organizations must pursue and reach agreement on common guidelines and protocols for completing complex prescribed burns and achieve the highest levels of interagency understanding, standardization, and cooperation. Development of and full understanding and endorsement of and adherence to standardized prescribed fire and fuel treatment planning and implementation procedures are an immediate and priority programmatic need.

- ❑ Other possible management considerations include:
 - Coordinate prioritization and sequencing of fuel treatment across jurisdictional boundaries to collaborate, mitigate, and minimize conflicts, enhance community support, and maximize public safety.
 - Seek alternative means and funds to treat hazardous fuel in the urban interface.
 - To improve cooperation and effectiveness across all agencies, aggressively use FIREWISE recommendations to treat nearby structures, conduct interagency emergency management disaster drills, preparedness exercises and training, and after-action assessments.
 - Ensure agreements and authorities exist and are understood for sharing resources and information across agencies, for emergency and non-emergency activities.
 - Explore other authorities or expand existing authorities to use Federal funds on non-federal lands to meet objectives of the National Fire Plan.

Finding: The burn ban/closure and burn permit process and required areas that the State and the Chugach NF implemented created confusion with the public and the agencies.

Recommendation:

- ❑ Region 10 State & Private Forestry and the State of Alaska, Division of Forestry need to rewrite and clarify the burn ban/closure and burn permit process and required areas and terminology prior to the start of the 2002 fire season and inform the public. Involvement of the other local government, state, and federal agencies will be necessary to ensure consistency. All agencies need to endorse and adhere to the burn ban/closure process to present a clear and unified image and example to the public.

CONTACTS

The review team met with numerous individuals and discussed information relevant to the planning, implementation, and communication of the prescribed fire; overall fire program management; the bark beetle epidemic history; and current situation. Other information associated with wildland fire, prescribed fire, and resource management on the Chugach National Forest was also discussed. The following individuals participated in discussions with the review team:

Gary Lehnhausen	Regional NFS Fire/IF Program Manager	USDA Forest Service, Alaska Regional Office
Al Murphy	Chief, Community Assistance and Protection	BLM, National Interagency Fire Center, Boise, ID
Paul Forward	Acting Regional Forester	USDA Forest Service, Alaska Regional Office
Rita Schoeneman	Acting Deputy Regional Forester, S&PF	USDA Forest Service, Alaska Regional Office
Dave Gibbons	Forest Supervisor	USDA Forest Service, Chugach National Forest
Wayne Bushnell	Regional Fire Program Manager	USDA Forest Service, Alaska Regional Office
Mike Stubbs	Forest Aviation/Fire Management Officer	USDA Forest Service, Chugach National Forest
Mike Kania	District Ranger	USDA Forest Service, Chugach National Forest, Seward Ranger District
Jamie Quade	Administrative Officer	USDA Forest Service, Chugach National Forest
Susan Rutherford	Public Services Staff Officer	USDA Forest Service, Chugach National Forest
Doug Stockdale	Public Affairs Officer	USDA Forest Service, Chugach National Forest
Mark Black	Fire Management Officer	USDA Forest Service, Chugach National Forest, Seward Ranger District
Bill Shuster	Fish, Wildlife, and Ecology Officer	USDA Forest Service, Chugach National Forest, Seward Ranger District

Warren Oja	Timber Planner	USDA Forest Service, Chugach National Forest, Seward Ranger District
Doug Wyatt	Engine Foreman	USDA Forest Service, Chugach National Forest, Seward Ranger District
Karen Kromrey	Forester/Public Information	USDA Forest Service, Chugach National Forest, Seward Ranger District
Paul Hefner	Incident Commander	Great Basin Interagency Incident Management Team (Payette National Forest, McCall, ID)
Dave Dash	Deputy Incident Commander	Great Basin Interagency Incident Management Team (BLM Alaska Fire Service, Fairbanks, AK)

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