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of British Columbia

The Silver Creek Fire Review

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The Silver Creek fire review

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Open Letter from the Acting Ombudsman May 31, 1999

On October 14, 1998, the Acting Ombudsman of the Province of BC issued a news release advising that this Office had initiated an investigation into the provincial government response to forest fires in the interior of British Columbia and around Salmon Arm during the summer of 1998.

Although the Ombudsman had intended to investigate the provincial government's response to forest fires in the BC interior last summer, the Ombudsman received limited negative comment regarding the response by the Ministry of Forests (MOF) to interior fires other than the Silver Creek Fire. Accordingly, in consideration of the specific nature of the concerns raised with this Office, the focus of this investigation is on the Silver Creek Fire. The Ombudsman has not addressed any potential compensation issues pertaining to the Silver Creek Fire. Residents who suffered uninsured losses in the Silver Creek Fire have presented their claims for compensation to the government and government should have an opportunity to assess these claims before the Office considers an investigation into these claims.

Because of the devastating nature of the fire and the loss and damage suffered by local residents, many questioned whether the MOF could have controlled the fire more effectively. The overwhelming theme of those interviewed was that the fire should have been extinguished before it reached the Silver Creek community. The Ombudsman is not an expert in the fighting of wildfires. The purpose of this investigation was not to determine whether the MOF should have fought the fire differently, but rather to identify areas of concern from the standpoint of administrative fairness and to provide the MOF with recommendations that the Ombudsman hopes will assist in the fighting of wildfires in the future.

The Ombudsman believes that the public has a right to know the details of the firefighting efforts during this very serious fire. The intent of this report is to inform the public and to provide the MOF with recommendations arising out of the investigation that will be helpful in dealing with future wildfire situations.

A number of recommendations made in this report relate to ensuring that the public is provided with timely and adequate information during firefighting efforts and that thorough and timely internal reviews are conducted on all major fires. Other recommendations deal with the need for further review of operations, the

accuracy of weather readings, air support, training, communication systems and documentation. I anticipate that these recommendations will be of assistance to the MOF in its future efforts to ensure fair administrative practices in relation to fighting wildfires in British Columbia.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brent Parfitt". The signature is fluid and cursive, with a large initial "B" and a stylized "P".

Brent Parfitt
A/Ombudsman for the Province of BC

I. INTRODUCTION

On October 14, 1998, the Ombudsman of the Province of BC issued a news release entitled ***Investigation into Provincial Government Fire Protection Efforts***. The authority for the Ombudsman to undertake an investigation of this nature is set out in s. 10 of the ***Ombudsman Act***, which reads:

- 10** (1) The Ombudsman, with respect to a matter of administration, on a complaint or on the Ombudsman's own initiative, may investigate
- (a) a decision or recommendation made,
 - (b) an act done or omitted, or
 - (c) a procedure used by an authority that aggrieves or may aggrieve a person.
- RSBC 1996

As stated in the news release, the specific investigation topics were to be as follows:

- reviewing the Ministry of Forests (the MOF) responsiveness to the public during the fires;
- investigating the administrative fairness of forest fire management policy and procedures;
- investigating compliance by the MOF personnel with fire management policy and process; and,
- defining the scope of property loss and potential sources of compensation.

At the time of this news release, the Ombudsman had intended to investigate the provincial government's response to forest fires in the BC interior last summer. However, the Ombudsman received limited negative comment regarding the handling by the MOF of interior fires other than the Silver Creek Fire. Accordingly, the focus of this review has been the Silver Creek Fire. The Ombudsman has not addressed any potential compensation issues pertaining to the Silver Creek Fire. By letter dated January 26, 1999, to Premier Clark, the Silver Creek residents who suffered uninsured losses in the Silver Creek Fire presented their claims for compensation to the government. A group called the Victims of the Salmon Arm/Silver Creek Fire Disaster presented this collective claim and have requested a timely response to their claim. The government should have an opportunity to assess these claims.

Pursuant to section 31(3) of the ***Ombudsman Act***, the Ombudsman has the authority to issue a public report when it is considered to be in the public interest. Section 31(3) reads:

- 31** (3) If the Ombudsman considers it to be in the public interest or in the interest of a person or authority, the Ombudsman may make a special report to the Legislative Assembly or comment publicly about a matter relating generally to the exercise of the Ombudsman's duties under this Act or to a particular case investigated by the Ombudsman.
RSBC 1996

The Ombudsman is of the opinion that it is in the public interest to make this report public. Moreover, the Ombudsman believes that it is in the interests of both the community of Silver Creek and the MOF to submit this report.

The Ombudsman is not an expert in the fighting of wildfires. The purpose of this investigation was not to determine whether the MOF could have done things differently and, by so doing, have prevented the tragic property damage that was inflicted on the Silver Creek residents. Hindsight is, of course, 20/20. The purpose of this investigation was to identify areas of concern from the standpoint of administrative fairness and to provide the MOF with recommendations that the Ombudsman hopes will assist in the fighting of wildfires in the future.

Interviews were conducted in Salmon Arm from November 9, 1998 to November 13, 1998 inclusive. Understandably, the majority of people who spoke with us were from the Silver Creek community. At the outset, it should be pointed out that there were few criticisms regarding the actual evacuation of Silver Creek and, later, Salmon Arm. We did hear concerns about the breadth of the Salmon Arm evacuation and its disruption of local businesses; however, the general consensus of those interviewed was that the evacuations were properly handled.

The overwhelming theme of those interviewed was that the Silver Creek Fire should have been extinguished before it reached the Silver Creek community. Again, it is important to emphasize that the Ombudsman is not in a position to second-guess decisions made by experienced MOF firefighting personnel. Rather, we have conducted a review and analysis of how the MOF responded to the public during this fire and have made recommendations to improve this response. The purpose of this report was not to lay blame on any MOF staff or contractor who worked on this fire.

As a result of information received from those interviewed, a review of the Silver Creek Fire documentation, statements by key MOF personnel, interviews with key MOF personnel, a review of the **Operations and Procedures Manual**, Ministry of Forests, Protection Branch, 1996 (the **Manual**), and consultation with MOF staff, the Ombudsman has identified some areas of concern and made certain recommendations for the MOF to consider. The Risk Management Branch, Ministry of Finance, declined our request for copies of interview notes and other information that it obtained during its investigation of the Silver Creek Fire. The Risk

Management Branch claimed privilege over these documents. The Ombudsman has consulted with MOF staff as required under the **Ombudsman Act**. Section 17 of the **Ombudsman Act** reads:

- 17** If it appears to the Ombudsman that there may be sufficient grounds for making a report or recommendation under this Act that may adversely affect an authority or person, the Ombudsman must, before deciding the matter,
- (a) inform the authority or person of the grounds, and
 - (b) give the authority or person the opportunity to make representations, either orally or in writing at the discretion of the Ombudsman.
- RSBC 1996

The Ombudsman commends the ministry staff for their extensive efforts in responding to our concerns.

By focusing on these areas of concern, the Ombudsman does not want to detract from the efforts of all those involved in fighting this fire and dealing with its aftermath. As will be seen in Section II of this report, the overview section, the summer of 1998 was one of the most difficult firefighting seasons ever faced by the MOF. The efforts of all those who fought this and other fires are to be highly commended. The MOF should be extremely proud that there were no fatalities fighting wildfires in BC in 1998.

II. OVERVIEW OF THE WILDFIRE SITUATION IN THE BC INTERIOR DURING THE SUMMER OF 1998

While the focus of this report concerns the Silver Creek Fire, it is important to place this fire in context. The MOF has requested that the Ombudsman acknowledge the incredible constraints that the MOF was operating under during the 1998 firefighting season. The Ombudsman recognizes and accepts these limitations.

The MOF has provided the Ombudsman with an overview of both the provincial situation and that of Salmon Arm. The Ombudsman reproduces this account offered by the MOF. The Ombudsman is satisfied that it portrays the gravity of the situation faced by provincial firefighters during the summer of 1998, and, in particular, in fighting the Silver Creek Fire. The MOF explains the situation as follows:

Scene Overview

Provincial Situation

The 1998 season was predicted by many to be an exceptional year based on two factors. First, the previous three seasons had been exceptionally quiet. Second, the world was experiencing the strongest el Niño event on record during the winter of 1997/98. The weather conditions triggered by el Niño resulted in extensive wildfire damage in many regions, including SE Asia, Africa, and South America, well before the North American season.

The extreme nature of the el Niño event and world wildfire situation prompted the Director of the Forest Protection Program to initiate extraordinary measures to prepare starting in January of 1998. This included adding three initial attack crews (nine persons), one unit crew (twenty persons), twelve fire specialists, two air tankers (waterbombers), one bird-dog aircraft (lead plane), and one crew transport aircraft. The total cost of these additions was approximately \$3 million, an increased expenditure over the budgeted allocation of more than seven percent.

Concerns over the impending fire conditions were validated in June when extreme conditions resulted in explosive fire growth of many fires throughout the province of Alberta. Resources from across North America, including British Columbia, were marshaled to assist in battling these very dangerous fires. The effectiveness of these extreme efforts was not encouraging, and in the end Alberta lost over 700,000 hectares to 1,600 fires at a cost of approximately \$250 million, with significant damage to personal property and oil and gas facilities.

By mid-July these extreme conditions shifted to British Columbia's interior. Just as in Alberta, many temperature records were broken in mid-July through to mid-August. As well, extreme drought was experienced throughout the east central Interior, to the extent of killing major areas of forest understory.

In recognition of these escalating conditions, every effort was made to acquire additional resources to further augment the wildfire fighting forces. This included crews from the forest industry, contractors, Ontario, Quebec, New Brunswick, the Northwest Territories, Alaska, and the Canadian Military, helicopters from across Canada, waterbombers from Quebec, the Yukon Territory, Forest Industry Flying Tankers Ltd., Conair Aviation Ltd., Airspray (1967) Ltd., and even Alberta later in the season. Every available resource from across Canada was requested, however the extreme conditions in Alberta and other provinces limited resources that would have been accessible during a normal season.

The following table shows the escalation of resources both for the el Niño concern and the response to the increasing fire activity as the season developed.

Resource Type	Regular Complement	el Niño Addition	Emergency Complement	Total
Initial Attack Crews	107 (321 persons)	3 (9 persons)	94 (282 persons)	204 (612 persons)
Unit Crews	21 (420 persons)	1 (20 persons)		22 (440 persons)
EFF/Industry Crew Persons			1,359	1,359
Fire Specialists	120	12	59	211
Airtankers	11	2	7	20
Birddog Aircraft	7	1	3	11
Transporter Aircraft	2	1	a	3
Light/Inter. Helicopters	6	a	133	139
Medium Helicopters	4	a	23	27
Heavy Helicopters	a	a	22	22
Heavy Equipment (Pieces)	a	a	451	451

("a" refers to "hired-as-needed")

With the extremely dry conditions, much of the cloud development in British Columbia brought dry lightning (lightning without rainfall), a very dangerous combination. As well, lightning fires, which are normally more frequent in the remote and mountainous areas of British Columbia, were occurring within threatening distance of communities.

The dry lightning resulted in a large number of fires within a very short period of time. For the seven day period of July 30 to August 5, there were 478 new fires of

which 444 were caused by lightning. From July 29 to August 7 there were a total of 606 fires, of which 552 were lightning which was an additional workload of 67 fires per day. These fires were in addition to the 167 already burning before July 29.

Many of these fires required air tanker support to prevent them from becoming problem fires. By August 5, there were up to 50 requests for air tanker action per day, but with the fleet that was available, only 15 to 25 of those requests could be filled. Requests for additional aircraft from other provinces started July 28 with the Bombardier CL415's (2 aircraft) from Quebec and Airspray A26's from Alberta (4 aircraft) and on July 29 the Martin Mars (1 aircraft) was directed to Salmon Arm. By August 3, requests for additional aircraft could not be filled due to continued high fire activity outside British Columbia. By August 9, heavy helicopters were being used as air tankers on large fires to free up fixed-wing air tankers for initial attack on new fires.

The burning conditions were such that these fires were extremely difficult to extinguish, even when air support was available. The fires needed the commitment of one and often more than one crew for several days to ensure the fire was out. It is easy to see how the 204 crews that were available became fully committed very quickly during this period.

Many of the field staff in the Protection Program and other emergency response agencies concede that the conditions of 1998 were the most severe ever experienced. This includes the weather and fuel conditions prior to the fires; the wind and fire spread conditions during the fires and the proximity of lightning fires near communities. The experience on which the observations are based span back 30 years and more.

It should also be noted that the magnitude of this situation was identified very early and the Minister of Forests was alerted immediately on significant changes to the firefighting situation as it unfolded. On August 7, the Minister of Forests, Deputy Minister of Forests and the Deputy Minister of Attorney-General toured the southern interior, including a visit to Salmon Arm to get a first hand view of the fire conditions. They later returned on August 9 and 10 with the Premier to assess progress on the fire suppression efforts and to tour the evacuation facilities established in Salmon Arm and Kamloops.

It is a credit to the staff and crews of the Province and assisting agencies that only 22 fires of 2,663 became problem fires. It is even more remarkable that only 78,000 hectares were burned in spite of conditions that became even more severe than those in Alberta. Given the greater dispersion of homes throughout forested and semi-forested land in British Columbia, the significant personal efforts of many

individuals was essential to prevent widespread damage to private property and loss of life. It is understandable but unfortunate that the very successful efforts of so many is now overshadowed by the severe conditions that overwhelmed efforts on one fire.

As reported by Price-Waterhouse in 1994, the Garnet Fire was 'a wake up call' to those living in or proposing to live in rural, forested areas to the serious and increasing vulnerability to wildfire of homes in interface areas. The wildfire threat is significant during average fire years, and critical during years such as 1998.

Salmon Arm

What follows is a short summary of the events and circumstances that occurred over the first eight days of this fire event.

On Wednesday, July 29, 1998, many areas of the province were at an extreme level of fire hazard rating, due to a weather pattern that had caused a prolonged dry spell, with very high daily temperatures. The Shuswap/Salmon Arm/Okanagan areas were in this condition. Numerous fires were being reported on a daily basis to the Kamloops Fire Centre (KFC). Resources were operating at their maximum.

In the late afternoon of July 29, 1998, a thunderstorm passed through the Salmon Arm area. At 15:43, lightning struck a hillside at 4300' elevation, above the community of Silver Creek, which is located approximately 20 kilometres south of the community of Salmon Arm. Silver Creek is located in the Salmon River Valley, a valley which runs approximately north/south and, which is bordered on the west by the area known as the Fly Hills and on the east, by a mountain range which culminates in a picturesque and popular hiking area, dominated by Mount Ida. Mount Ida overlooks the town of Salmon Arm.

As part of the preparedness program, the MOF had engaged trained air observers to make reconnaissance flights on a regular basis, watching for fire starts so that early response actions could be put into place. One of these air observers was flying in the Salmon River Valley when this lightning strike occurred. He immediately noticed the smoke, although he did not witness the actual lightning strike. At 15:50 he made a low pass over the fire, within minutes of the strike, and estimated the size to be .02-1.0 hectares on a steep slope with heavy timber and high fuel loadings. This fire had started on a south facing rock slope, where high temperatures and dry conditions had created a volatile situation.

He immediately climbed, to ensure that radio contact would be achieved with the KFC. He had completed a written initial fire report and read the details to the

radio operator at the KFC and recommended that a tanker be dispatched immediately. He then descended and flew very low over the fire, in order to complete a second observation. In that short time, which he estimated to be no longer than five minutes, he saw that the fire had grown to two hectares in size. He made this notation on his initial report form. On this second pass, he says that he was less than 100 feet off the trees, which allowed him to get a good view of the fire behaviour. He reported:

'I was surprised to see that the fire was starting to crown already. There was lots of flame. The fire was already moving uphill.'

KFC immediately (15:53) made a request to the Provincial Air Tanker Centre for action on the fire. One bird-dog aircraft was diverted from nearby fire K30203. Bird-dog number 51 was over the fire at 16:10. He reported the fire as being approximately 1 hectare in size, but it was already demonstrating rank 3 to 4 volatility. [See Appendix A - Rank Sheet]. A Lockheed Electra 188 Tanker (Tanker #88) was also diverted from another fire. With bird-dog 51 calling the drop targets, the first tanker drop was on the fire at 16:30. Retardant drops continued until 18:37 when they were halted by failing light and smoke. By that point, the fire was estimated to have grown in size to 10 hectares and was rated at rank 4 to 5 by the bird-dog.

During this first day, July 29, 1998, the fire was attacked by two Lockheed Electras, one DC6 and two Firecats. The total retardant dropped was 86,145 litres but despite this, the fire had established a strong grip in the steep canyon and continued to burn vigourously.

We wish to emphasise that this occurred in an area of the province, which had been identified as being at the extreme fire hazard level. Earlier, in reaction to this, the Ministry of Forests personnel had already moved to their highest level of alert, Precon (Preparedness Condition) Level 4.

In addition, this fire occurred in an isolated area, to which road access was very difficult. The steepness of the terrain around the actual fire was such that neither fire fighters, nor heavy equipment, could gain access safely. This, combined with a huge amount of very dry, volatile fuel, in the form of trees which had been killed earlier by beetles, created an instantly dangerous situation.

Road access to this location had been contemplated by Tolko, the licensee in the area, for several years, however even without the dangers imposed by the fire, they had not been able to plan a safe access road.

Suffice to say that over the next three days, this fire was attacked, using sound and aggressive fire fighting techniques and employing the maximum resources available to us. Despite the very challenging topography, the extremely hot, dry weather and the difficult access, we were making good progress. Then, our first major setback occurred when a strong wind came up on August 3.

Wind has a very significant effect on fire behaviour and of course, something outside of our control. While we cannot control the wind, we attempt to know its potential impact using weather predictions to adjust our preparedness and our tactics. Unfortunately, even in this age of satellites and sophisticated forecasting techniques, weather predictions cannot always be accurate.

By August 3, despite the best efforts of staff, the fire had grown to approximately 40 hectares and then suddenly, fanned by a south wind, it broke past the fireguards that had been established to the north. The fire size grew to approximately 300 hectares, with one small but significant spot fire beyond the most northerly flank.

Not only had this fire grown suddenly, adding a large volume of fuel to this already established fire, but as explained by the Operations Chief, with a spot fire ahead of the main fire, valuable resources were forced to deal with it; to avoid the ground forces being out-flanked.

At this time, the Operations Chief took the important step of contacting the Fire Commissioner's office and requested that evacuation alerts be issued to residents in the valley below, the community of Silver Creek.

On the next day, August 4, the fire continued to grow in size due to the prime conditions that existed for fire spread. Again, there was a secondary breakout of a spot fire, ahead of the main fire. To make matters worse, the meteorologists projected the passage of a cold front within the next 24 hours. This was expected to have accompanying strong, gusty winds and therefore, with this large fire not controlled and with the extremely high forest fire hazard indices throughout the area, a meeting was called by MOF personnel in the community of Silver Creek. The purpose was to address residents' concerns and to explain the nature of the event going on in the hills above them.

August 5, 1998, was the most significant date with respect to this fire. Until that time, the fire had been restricted to the Fly Hills area, well above the community of Silver Creek. It was located approximately 1500 feet above the valley, but was beginning to make breaks downhill, towards the populated area.

Under most conditions, fires normally move upward, following the flow of the heat. In this case, because of the steepness of the mountain slope at the upper part of the valley, burning embers rolled down the slope. Despite this, because the slope lessens as one follows it down from the fire site to the valley, there was no indication that the fire would move suddenly downhill.

The fire fighters were expecting the strong winds to strike the area on August 5 at approximately 18:00. Instead, the front moved faster than anticipated and struck the area at 13:00. The winds accompanying this system were from the west, with strong localised gusts. These were later estimated to be in excess of 100 km/h. This mixture of high wind and an already active forest fire in a very volatile forest, spelled disaster.

This wind turned into a downslope flow, as it came over the back of the mountain. This was caused by the direction and strength of the wind interacting with the shape of the mountain and valley, an effect known as “mechanical turbulence.” The wind carried the already advancing fire front downhill at a very high rate of speed. The movement of the fire was estimated to be as fast as 100 metres per minute. With the arrival of the windstorm, members of the overhead team (a team of fire suppression experts) recognised that this fire would be unstoppable for the short term and therefore, they recommended that the Fire Commissioner's office immediately order evacuation of those residents located in the projected path of the fire. The evacuation order was issued at 1335.

Over the next several hours the spread of this fire was nothing short of spectacular. As it blew down the valley, the huge column of convective smoke and ash which billowed from this fire, was blown-over by the wind, into a large arch across the valley. The valley bottom is primarily farm land or rural subdivisions. The green alfalfa fields, and the general lack of closely spaced timber for fuel, would normally prevent the spread of a forest fire. In this case, however, as the giant column of smoke and ash was pushed over the valley in the very strong winds, pieces of burning debris rained from the smoke cloud, which had now reached across the entire valley.

Eyewitnesses, who were in the valley below at the time, described a horrifying scene of pieces of burning wood, sometimes as large as baseballs, falling from the sky. As these fell onto structures, vehicles or other flammable items, fires broke out all over the valley. Those people who had not left the valley described scenes of pure panic. Despite the presence of the local fire departments, the MOF fire fighters, the RCMP, and Search and Rescue volunteers, nothing could stop immediate ignition of homes and barns.

The column was so large as to span the green valley and to begin dropping embers on the east side of the valley, approximately one and a half to two kilometres away. As the burning embers fell onto the dry forest on that side of the valley, it too ignited. The fire then began a run up the south slope of Mount Ida. Here again, the fire began moving very quickly through the highly volatile forest. The spread speeds were again estimated to be in the range of 100 meters per minute.

Meanwhile, the fire fighters had been pulled back from the fire on all fronts in an attempt to limit the loss of life. Those forces that were in the valley were mobilized to establish guards around peoples' homes and to help with the firefighting activities there. The air attack was changed from attacking the fire itself to attempting to lay retardant around homes in the valley. Flying large aircraft in these conditions, with 100 km/h gusts and the violent turbulence from this huge fire, was nothing less than heroic. By 18:00, conditions were simply too dangerous and the last tanker made its final run.

As the fire swept up Mount Ida, helicopters attempted to clear hikers from the top of the mountain. Nothing could be done to stop the fire's progress and over the course of that evening, the fire swept over the top of Mount Ida and began to move down the north side, towards the town of Salmon Arm. The fire's rapid progress was finally stopped when the wind abated.

This scene overview is intended to illustrate the situation and the context which we were faced, which was an extremely difficult and ferocious fire from the outset. The forest service attacked it with our best overhead team, which was led by (the Fire Boss) and (the Operations Chief), both Class "A" fire bosses. The combined efforts of the fire bosses, the heavy equipment and initial attack crews on the ground, the full air attack force, a fully instituted pre-organisational effort, all our modern technology and access to stand-by equipment could not put this fire out.

This south facing rocky canyon was full of a large amount of fuel, trees which had died due the beetle kill and which were tinder dry. Once these large trees began to burn in this inaccessible area, the fire became a problem. As expressed by the Fire Warden:

'If you're going to set a fire, on purpose, in that valley, and you wanted to do the most damage and cause the biggest fire, you would set it right where that lightning hit.'

This difficult topography, high fire danger, fuel load, exceptionally high temperatures coupled with wind events on August 3 and again on August 5, all combined to make this fire uncontrollable." [See Appendix B- Map of Silver Creek Fire].

III. A REVIEW OF THE MOF RESPONSIVENESS TO THE PUBLIC DURING THE FIRE

1. Timely Notice to Silver Creek Residents

One of the criticisms voiced by some of the Silver Creek residents was that they were not made aware of the seriousness of the Silver Creek Fire early enough.

From the accounts of various MOF personnel on the front line, it is clear that the Silver Creek Fire had great potential almost from the moment that the lightning strike ignited the fire. One of the bird dog operators made the following notations on July 29, 1998, after he had reconnoitred the fire:

Fire has potential to become very large and serious... Will be very hard to hold if it gets into B/D and TBR to the North... Will have to hit this fire very hard tomorrow am – especially from the air... Somebody should start talking to residents (Interface) tomorrow – This fire has potential to do serious damage.

The MOF has advised the Ombudsman that it assigned an information team to this fire on July 30, 1998. According to the MOF, the Information Team identified that the Silver Creek store was both a community gathering place and an information centre and, therefore, they visited the store on the evening of July 30 to meet with any residents who had gathered. The MOF further states that the Information Team gave approximately ten interviews to media on July 30 and a further 20 interviews between August 1 and August 3. As well, the MOF notes that fire bulletins were posted throughout the community, and the Salmon Arm media, both newspaper and radio, were kept apprised of developments.

In our review of the MOF documents and during our discussions with the MOF Operations Chief, we found that on August 1, 1998, the Operations Chief took the owner of the Silver Creek General Store, acting as community liaison, for a helicopter flight over the fire area to give him an idea of what the MOF was up against in fighting this fire. The Operations Chief had this to say about the flight with the local community leader:

I knew that the people in the valley were worried about the fire and that it had now burned since July 29. My intention was to show (the) community leader, 1st hand, the difficulties which we were facing... At the conclusion of that flight, (he) had a much better idea of the severity of the problem and I knew that he would convey this to the members of the community.

Later that evening, the Operations Chief conducted a second flyover with the community spokesperson and a local rancher to "gain further local knowledge" to assist with fire suppression efforts.

The Ombudsman commends the MOF Operations Chief for recognizing the importance of utilizing a community spokesperson/liaison who can assist with "local knowledge" and convey information to and from the community. The Ombudsman encourages the MOF to adopt this concept as part of its standard operation procedures when fighting wildfires in close proximity to communities (interface fires).

The MOF states that the level of notification to the Silver Creek residents was intensified when on August 3 the decision was made to place the residents of this area on ten (10) minute evacuation alert. [See Appendix C - Evacuation Alert Bulletin]. A ten-minute evacuation alert was issued over the Silver Creek area at 2030 hours on August 3. This alert was conveyed to the residents by radio, television, newspaper, posted notices at the Silver Creek store and personal contact, using the Provincial Emergency Program coordinators. A fire notice document, in fluorescent pink lettering, was delivered to the residents of Silver Creek on August 3 and 4 (the Fire Notice). [See Appendix D - Fire Notice].

The MOF acknowledges that it had an obligation to alert residents of danger. Having said this, the Ombudsman agrees with the MOF's position that it is difficult balancing the obligation to alert with the concern not to create panic. The Ombudsman accepts the MOF's position that it would be a simple matter to issue an evacuation alert to everyone living within the potential reach of a wildfire -- to tell them that the fire might destroy their homes. Further the Ombudsman agrees that to do so, and create either panic and worry, or to lull the public into a state of complacency because of the possible overuse of alerts, would not be in the best interests of the public. Rather, the Ombudsman acknowledges that the MOF must use its knowledge and expertise judiciously to advise people when there is a *reasonable probability* that they will be affected by the fire.

The Ombudsman is satisfied that the MOF acted appropriately in its efforts to notify the Silver Creek residents of the problems with fighting this fire and inform them of its potential impact. The Ombudsman is satisfied that the Silver Creek residents received timely notice from the MOF of the potential of the Silver Creek Fire.

During consultation with the MOF, the Ombudsman and ministry staff discussed the ten (10) minute Evacuation Alert and the Fire Notice. The Office of the Fire Commissioner, not the MOF, is responsible for issuing evacuation alerts and evacuation orders. The MOF has informed the Ombudsman that the ten-minute evacuation alert has been discussed with the Office of the Fire Commissioner, which is considering a possible revision of the ten-minute evacuation alert to

provide residents with more time to leave an area. The Ombudsman also questioned whether there was a need for improvement in the details of the Fire Notice. The MOF has agreed that the Fire Notice could be revised to provide greater clarity concerning the steps that residents should follow to protect themselves, their property and their belongings in the face of a wildfire threat.

2. Meeting at Silver Creek Community Hall During Evening of August 4, 1998

A meeting was arranged with the Silver Creek community during the evening of August 4, 1998. This meeting was chaired by a member of the Regional District. There were a number of MOF personnel in attendance including the Fire Boss, and a MOF fire behaviour specialist. The meeting was well attended by Silver Creek residents. According to the MOF notes, there were approximately 150 residents of Silver Creek in attendance.

Some people at this meeting felt that the MOF did not express the potential danger adequately enough to the Silver Creek residents. We heard evidence from some people that the MOF personnel were proffering the advice at this meeting that fire does not burn downhill. We have reviewed the MOF notes entitled **Silver Creek Community Hall Meeting**, Thursday, August 4, 2100 hours. The notes do not indicate that this advice was provided to the attendees.

However, the real issue is whether the seriousness of the situation was expressed to the residents. A member of the RCMP was in attendance at this meeting. This RCMP officer made the following comments during an interview conducted for the MOF:

Interviewer:

By being in the hands of professionals, do you think anyone left that meeting with the understanding that the professionals had this fire under control and they were safe? What was your overriding impression?

RCMP Officer:

I didn't have that feeling. Knowing nothing about forest fires, I left that meeting knowing a lot more than I did when I got there. I realized how big a creature this thing was and the potential for disaster that could happen. That was my impression of it and I think when people left the meeting, they understood a lot more about fire than when they got there. I don't think that anybody was lulled into a sense of false security, because the fire was under control, that's not the case. That was never mentioned to anyone.

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Interviewer:

These people in the valley were under evacuation alert at the time. Was that impressed upon them at the meeting?

RCMP Officer:

Yes. I believe the alert at that time was from, I don't recall the exact areas that the alert was on, but it was I think down in the Silver Creek Store. It was explained to them exactly what an alert meant.

Interviewer:

So if you had been a resident in the alert area and had been at that meeting, would you leave that meeting and think, oh, everything is fine now, or would you have been on your guard?

RCMP Officer:

My family would have been gone - already. I would have had them moved, no question about it.

Interviewer:

So the general feeling coming out of the meeting was that this fire is not under control.

RCMP Officer:

That was my impression of it. That they explained how dry the conditions were in the valley, the potential for disaster.

The residents were already on ten-minute evacuation alert and the purpose of the meeting was to answer their concerns and to keep them advised of the latest developments on this fire. The purpose was not to create panic, but to inform. The Ombudsman is satisfied that the meeting was conducted appropriately and that those in attendance were not left with a false sense of security.

3. Dissemination of Information

The MOF has informed the Ombudsman that during the Silver Creek Fire, it made extensive efforts to provide timely information to the public, including the following:

1. Establishing an extensive media relations effort, with information officers available from the outset of this fire;
2. Establishing twenty-two toll free fire information line updates regarding the fire;

3. Completing regular fire information web site updates;
4. Establishing a dedicated FM radio station, broadcasting fire status reports throughout Salmon Arm;
5. Establishing phone lines to the Emergency Operations Centre and to Information Team members for callers to get information updates;
6. Delivery of Fire Notices; and
7. Arranging the community meeting for residents of Silver Creek.

These efforts are to be acknowledged and commended. We have found that the information was, for the most part, provided in a timely and appropriate manner. Having said this, our review has found that some inaccurate information was disseminated to the public during this fire.

Some examples of inaccuracies are set out below. The KFC Update, (Wednesday) July 30/98 @ 0900 hours read:

K30285 – Fly Hills

An Overhead Team and an Information Team have been assigned this fire. It is currently 20 ha in size and is approx. 4 kms away from the Gleneden subdivision. Crew access is limited, as there is slash and beetle kill covering the ground. Air support includes the Martin Mars from Sproat Lake. Two unit crews will be actioning the fire from the ground.

The BC Forest Service Information Bulletin, July 30, 2000, stated:

Two unit crews will be actioning the fire from the ground as of Friday morning.

Similarly, the BC Forest Service Information Bulletin, August 1, 0900 , stated:

One unit crew of 20 firefighters has been working the fire since Thursday and a second crew will arrive later today. Two excavators, two water trucks, two skidder trucks and two cats are also working on the fire.

With the use of excavators and cats, a trail has been developed to the edge of the fire and work will continue where topography allows.

The evidence confirms that two unit crews were ordered on July 29. When the MOF Salmon Arm protection officer contacted KFC on July 29 for a conference call, he said: “[W]e are looking for a minimum of two unit crews to be sent to Salmon Arm tomorrow.” In an interview conducted for the MOF, the MOF Salmon Arm

protection officer explained that no crews actually set foot on the fire on Thursday, July 30:

One unit crew came in at night, the other was supposed to arrive by 1000. We got them and they were all keen and ready to go fight fire and we had to tell them that we had no place for them to go because we had no access into the fire and we couldn't walk them in because that would have been a dangerous move.... So we had two unit crews basically within the first day and they went up there and they did whatever they could ... Whatever they could do they did but that first day (July 30) I don't believe that anybody stepped foot on the fire.

The evidence reveals that two unit crews were not actioning the Silver Creek Fire as of July 31. An examination of the BCFS Resource Tracking System and the unit crew daily reports shows that this was, in fact, not the case. The Sto:lo crew was ordered on July 29. The Sto:lo Crew Daily Activity Report for July 30 reads: "Travel from Haig camp, Hope to S/A and standby for further instructions (0500-2030)." The Sto:lo Crew did not start actioning the Silver Creek Fire until July 31. The Riske Creek Crew arrived on July 30. The Riske Creek Daily Activity Report for July 30 states: "No work done on fire while planning occurred." The Riske Creek Crew was then reassigned to Fire #247, Ansty Arm, on July 31. Therefore, it seems that there were no ground crews working the Silver Creek Fire, which started on the afternoon of July 29, until July 31.

On July 31, only one ground crew began actioning the Silver Creek Fire. In his statement, during an interview conducted for the MOF, the MOF Operations Chief confirmed that cat guards were just being established on July 31. He stated:

I have been asked if I would have used more people if they had been available and I simply couldn't. If we had a cat guard, we could possibly have used more, but now, with the guards just being established, there would be no evacuation route and therefore the Sto:lo crew was all we could use for the time being.

On August 1, the Sto:lo Crew was still the only unit crew working the fire. The Sto:lo Crew Daily Activity Report for August 1 states:

Sector C was effective but slow due to lack of manpower (1 squad) to work with 2 skidders and 3 water trucks.

The BC Forest Service Information Bulletin, August 3, 1998, 2200, read, in part:

A full-out air assault on the fire will begin early Tuesday morning.

A review of the actual hours of bucketing suggests that there were 47.6 hours of bucketing on August 3 and 46.2 hours of bucketing on August 4.

The BC Forest Service Information Bulletin of August 3 stated that “the Martin Mars aircraft will be working the fire.” Technically, this is true. However, the Martin Mars was predominantly working another fire, Fire #247, Ansty Arm, during most of the day on August 3. The Operations Chief for the Silver Creek Fire had been requesting the Martin Mars to assist with the Silver Creek Fire. The BCFS Resource Tracking System reveals the following requests from the Operations Chief:

1311 Putting in a request for the Martin Mars

1455 Requesting the Mars through Kamloops again. If they don't get here soon the fire will be taking a big run.

1842 Asking what happened to the Martin Mars

1913 Mars is going to attempt the west side

The BCFS Resource Tracking System notes for the Operations Chief for August 3 state: “Mars were used almost exclusively on 247 on Aug 3.”

While perfection cannot be expected, the public has the right to receive accurate information wherever possible. The Ombudsman finds that the MOF had no intention to mislead the public in these few instances where inaccurate information was disseminated. The MOF has acknowledged these points and has given its commitment to improve on its information system in future firefighting situations.

4. Did the Silver Creek Residents Receive the Evacuation Order Soon Enough?

The evacuation order was faxed from the KFC at 1331 and the area was put on evacuation order at 1335. [See Appendix E - Evacuation Order]. We have heard reports from some of those interviewed that MOF personnel may have advised some residents at 1300 that the situation had reached the critical level. This was no doubt true. This has led some people to speculate that the evacuation order should have been made earlier.

On August 5, fire crews received an extreme fire behaviour advisory/warning at 1300. The Ombudsman is satisfied that this was a normal precautionary advisory; it was not given in anticipation of the evacuation order. The MOF had received warnings of the approach of the extremely strong winds, but these winds were expected to appear later in the day.

The extreme wind event hit the fire at 1315. The Operations Chief called for the evacuation to begin at 1323. The Operations Chief explained the event as follows in his statement prepared for the MOF:

The weather forecast was not good. We knew that a front was to pass later in the day with strong, gusty winds. In fact, this front travelled more quickly than anticipated and reached our area at approximately 13:15. ...

By 13:15, I could see that this fire was reaching rank 6 and was challenging all of our retardant lines and starting to move downslope. At 13:15 I called for the evacuation to begin from Johnson Street to 70th Avenue in the valley. This was a big decision and 10 minutes later the wind subsided slightly and I thought I was wrong. Then a few minutes later, the wind picked up in intensity and I knew that the evacuation must take place at once.

The MOF has explained that the call was made at the fire scene, relayed to the KFC and immediately sent to the Fire Commissioner's Office. The Fire Commissioner's Office, which must actually make the order, did so at once. The order was posted at 1335.

The Ombudsman wholeheartedly agrees with the MOF that given the time required to assess the situation, make the serious decision to force people out of their homes and to have the order made, this 15-20 minute time frame was not only reasonable, but exemplary.

5. Was the MOF Aware of the Location of the Local Contractor on Fly Hills at the Time of the Initial Fire Strike?

There have been articles in the local newspaper concerning a local logging contractor, who, together with his crew, at the time of the initial lightning strike, was building a logging road for Tolko Industries on Fly Hills. A number of people who spoke with us, including this local contractor, expressed dismay that the MOF had not utilized his services during the initial attack on this fire. The local contractor advised us that he and his crew were approximately 3 km. away from the initial lightning strike. He claims that without a truck, it would have taken approximately three to four hours to reach the fire and with a lowbed truck, the crew and machines could have been there in about an hour. Given the concern that this issue raised in the local community, we asked the MOF to provide a clear explanation for why this local contractor was not utilized when available.

The MOF responded as follows. This local contractor's crew, and other untrained crews, were not used on this fire. This was an extremely dangerous fire to fight from the outset. To have brought untrained crews into this very serious fire, when there was only one narrow, winding road for escape, would not only have put them in jeopardy, but also could have hampered the efforts of the qualified crews.

According to the MOF, the MOF Salmon Arm protection officer called the Tolko representative at the start of this fire, as it was this company that had knowledge of its road system. Further, according to the MOF, the Tolko representative did not advise the MOF of this contractor's presence. During his interview, conducted for the MOF, the Salmon Arm protection officer confirmed that he had both spoken with and met a Tolko representative on July 29. During this interview, the Salmon Arm protection officer, referring to his notes, said:

I have got a comment here at 1606. I had called Tolko industries, which is their operating area, and had them start working on somebody with a common knowledge of the road up there. At that time, I knew that we needed some help in there to figure out roads or potential roads. So that was done.

The Salmon Arm protection officer has confirmed that the Tolko representative did not mention this local contractor. We have spoken with the Tolko representative who informed us that he met with MOF personnel on Fly Hills during the early evening of July 29. He has confirmed that he did not inform the MOF of the location of this local contractor. He estimates that it would have taken the local contractor approximately four hours to "walk" his excavator to the fire; he maintains that it would have taken approximately six hours to get this excavator around to the fire location by lowbed truck. The MOF has assured the Ombudsman that it would be faster to bring equipment in from Salmon Arm by lowbed truck. The Tolko representative confirmed that the MOF had already mobilized a cat and excavator.

Furthermore, the MOF maintains that it could not have used more equipment at the start of the fire. This fire was burning in very steep terrain, so steep that Tolko Industries had earlier abandoned its plan to build roads into this canyon to log the area. The MOF maintains that it was from the end of Tolko Industries' earlier discontinued road building efforts that the MOF now, under emergency conditions, was forced to build a new road into the fire. In these slow-moving conditions, with a fierce forest fire raging, the MOF is convinced that there was simply no use for more equipment at the start of the fire.

The Ombudsman is satisfied that the MOF did not know of the contractor's position at the time of the initial fire strike. The Ombudsman is also satisfied with the MOF's response on this issue.

6. Did the MOF Provide Sufficient Information to the Silver Creek Community Concerning Decisions Made or Problems that Arose that Affected the MOF Suppression Efforts?

(i) Number of Aircraft Used

A common criticism from people we spoke with was that the MOF was not using enough air support during the early stages of the fire. As stated at the outset of this report, my Office does not have expertise in the fighting of wildfires. The purpose of this report is not to second-guess the strategic decisions made in fighting this fire. The Ombudsman accepts the MOF's position that the various aircraft, equipment and firefighters are all part of the arsenal of the fire boss in combating the fire. The Ombudsman further accepts that his skill and judgement are to be relied upon in the selection of any particular tool from this inventory at any particular moment.

The Martin Mars was used on July 30 and the general public knew to look for these huge airplanes. There has been criticism as to why the Martin Mars were not used from dawn to dusk. As the MOF explains, in addition to the obvious physical restrictions of aircraft fuel, pilot fatigue and maintenance, the fire boss considers using this tool only when it would be effective. As the Martin Mars cannot drop its heavy load while ground crews are actioning the fire, the decision to select one tool or the other (e.g. the Martin Mars v. ground crew) is a tactical decision made by the fire boss for firefighting and safety reasons. Again, the Ombudsman is not prepared to second-guess these difficult decisions.

The MOF has informed the Ombudsman that on August 1 and 2 the tactical decision was made to fight the fire with ground crews and helicopters only. No air tankers were used for two days in order to allow ground crews to move in safely. The MOF believes that this was a sound tactical decision. On August 3, for strategic reasons, the decision was made to use more air support. When this was done, people may have concluded that the lack of air activity for the preceding two days signalled some type of error.

The Ombudsman cannot take issue with the MOF's tactical decisions in fighting this fire. Fighting wildfires requires a delicate balance of ground attack and air support and the Ombudsman must defer to the expertise of those people who have many years of firefighting expertise in making these decisions. The Ombudsman agrees with the MOF that there is a mistaken, albeit understandable, belief on the part of the general public that aircraft can put out fires.

Reference can be made to the following source: **A Guide to Effective Use of Airtankers for Forest Officers, No. 1, Forest Protection Handbook** (Revised 1976) (BC Forest Service, Forest Protection Division, Victoria, BC). Although written in 1976, the conclusions found at p. 20 of this **Guide** help to put the balance in perspective:

The effectiveness of airtankers in forest fire control has been proven to our satisfaction beyond all doubt. They are not now, nor will they become, the cure-all in suppression work. They are however, a very effective firefighting tool and, when used on fires in proper circumstances, have deservedly earned their place in our protection organization. Their effective use today says much for the courage and wisdom of those in both the aviation industry and in Forest Services who pioneered this controversial concept just a few short years ago.

New aircraft, increased use of helicopters as tankers, more efficient and adaptable retardants and retardant mixing methods are some of the developments that can be expected in the future. However, it is still the man on the ground with hand tools, bulldozers, and pumps who finally controls a fire. It is hoped this handbook aids him in his job.

Having said this, in the opinion of the Ombudsman, it is crucial for the MOF to provide those people in communities who are directly affected by a wildfire threat with an explanation of the reasons for making decisions as the firefighting efforts are unfolding.

(ii) Fuelling Problems

The explanation given by MOF personnel for the observation that little air activity was occurring during the first few days of the fire was that the air support was using water sources on the other side of Fly Hills, which would make it difficult for residents to see the air activity.

The fuelling problems at Salmon Arm airport were not reported to the public. On July 31 and August 8, shipments of fuel to the Salmon Arm airport were delayed. The MOF has advised the Ombudsman that the fuel delivery truck, which was coming from Edmonton, was delayed when the driver was forced to sleep en route. The MOF Salmon Arm protection officer explained the delay as follows during his interview conducted for the MOF:

We ran out of fuel at one point at the airport. I did everything I could to get the fuel here. In 2 and ½ hours we had 15,000 litres at the base, regardless of what the city did. We had it here for the air strike force. I am sure the general public saw it and said why aren't they flying? They didn't know that there was no fuel. We couldn't get them in the air. We had two 61s fuelled the night before and the

strategy was to put one 61 and a bird dog up to fight the fire, we have to make an image here.

He went on to explain how this affected air support:

So what it did was instead of sending up the whole fleet like we normally would have done there was a bit of a logistics thing there we had to shuffle around. Some of the lights, the 206s had no fuel. Not enough to do anything so they sat on the ground while the ones that did have, and I obtained a cache of 12 drums delivered to the airport and that is what serviced the rotor wings immediately.

A historian retained by the MOF to review documentation and prepare daily reports on the fire provided this synopsis:

On July 31 (or August 1) the municipal airport ran out of fuel ... the event caused the delay of full air action from 7-10 am. (The MOF Salmon Arm protection officer) suggests that this delay resulted in no significant impact on fire control. This likely explains why public saw little air action that morning. A similar fuel problem occurred on August 8.

The MOF has acknowledged that a fuel problem occurred at the Salmon Arm airport on July 31. The MOF has confirmed that on this day, at the crucial start of the fire, an important order of fuel did not arrive. Therefore, the airport's fuel supply was exhausted as of 0500. The MOF has informed the Ombudsman that this problem was immediately recognized and through the efforts of many, fuel was found, in order to have supplies available by 1000. When this occurred, all resources were called upon. Two tanker trucks of Jet-B fuel were located in Vernon, BC. They were immediately commandeered and drivers were located. The MOF states that the trucks arrived with 28,000 litres at 1005 on July 31. The evidence supports the MOF's version of events. It is the MOF's position that this three-hour fuel outage did not significantly affect the firefighting effort.

The Ombudsman appreciates that it was a difficult task to coordinate the use and fuelling of the various types of aircraft used to fight this fire. For instance, the Martin Mars are usually required to return to their home base at Sproat Lake on Vancouver Island for fuel. The MOF was able to establish a fuel system and temporary base at Sandy Point on Shuswap Lake to accommodate the Martin Mars. Moreover, the Ombudsman accepts that the MOF did not have control over the delay in the delivery of the fuel supply on July 31 and August 8. Having said this, in the opinion of the Ombudsman, when the public is questioning why aircraft are not flying on a particular day, the MOF has a responsibility to keep the public informed. Again, the Ombudsman acknowledges that the MOF must balance its responsibility to inform with its obligation not to panic the public unnecessarily.

7. Adequacy of the MOF Internal Review

The MOF conducted an internal review of the Silver Creek Fire and produced a four-page document entitled ***Silver Creek Fire (K30285) Debrief***. The ***Debrief*** contained some useful recommendations. The MOF informed the public and the media that it would be undertaking an internal review of the Silver Creek Fire. Arguably, no matter how thorough an investigation the MOF conducts, it may well be subject to criticism. However, neither the likelihood of criticism, nor the argument that an external review is pending, are sufficient grounds, in the opinion of the Ombudsman, to dispense with the need for the MOF to conduct its own thorough internal review. The need for a full internal audit that addresses concerns such as those discussed in this report is particularly critical in cases such as the Silver Creek Fire where considerable property loss occurred. Given the expertise that the MOF Protection Branch has in fighting wildfires, the Ombudsman is convinced of the necessity for the MOF Protection Branch to continue to undertake these internal audits.

The Ombudsman agrees with the MOF's position that day-to-day operational problems need not be conveyed to the public while the firefighting efforts are ongoing. The rationale, of course, is that the MOF has a duty to prevent panic situations wherever possible. Having said this, the Ombudsman believes that problems such as those set out below should be brought to light in an internal review.

(i) Water Problems

There are a number of references in the documentation to problems concerning delivery of water, and lack of water trucks and pumps to fight this fire.

For example, there is a notation for August 1: "3000 gal tank truck broken and down for repairs at dump tank." We also see the following notation in the Fire Daily Record Form for August 2: "Water tank trucks turn around time too long and tank truck pumps do not deliver sufficient pressure." The Merritt Crew Leader made the following comment in his August 2 Daily Activity Report: "The productivity could have been improved by having a higher volume pump at the lake, where the tank trucks were filling up." The Sto:lo Crew Leader stated in his Daily Activity Report for the same day: "Tank trucks turn around times too long and water pressure from trucks not very good." Another note for August 2 reads: "Other pump is down and used water on spot from previous night." The Riske Creek Unit Crew Leader provided this undated note: "1234 Water problems in morning w/3 skidders and 1 water truck. Ordered 1 water truck and 2 skidders after 1 skidder broke." The Fire History Daily Record Form for August 4 states: "Insufficient water trucks for water delivery." The BCFS Resource Tracking System for August 4 provides the following notation from the Sto:lo Crew: "1030 shortage

of water. Request more tanker trucks.” A handwritten note for August 6 states: “Lack of pumps today. Will be better supplied tomorrow.” The Merritt Crew Daily Activity Report for August 9 had this suggestion: “Hose lay with still wells would be more efficient.” Finally, the D’Arcy Crew Daily Activity Report for August 13 noted: “Skidder tankers have 45 min turnaround which makes for slow production.”

(ii) Mechanical Problems

A review of the material indicates that mechanical problems with aircraft and heavy equipment arose over the course of fighting this fire. Any time there is a prolonged firefighting effort, mechanical problems will be encountered. During the August 4 meeting at the Silver Creek Community Hall, when asked why there was a delay in using the Martin Mars on July 31, the Fire Boss did acknowledge that there were “mechanical problems.”

We have summarized the references to mechanical problems during the course of fighting this fire. Our findings are reproduced here. On August 1, we find the following references: “D7 down for repairs”; “One of S61s was down due to a blade problem but quickly rectified.” On August 3, we see this comment: “Mars did one drop. Unserviceability with the Mars. A/C aircraft maintenance problem.” The BCFS Resource Tracking System recorded that Sky Crane Tanker 47 was down all day on August 4:

2054 Having electrical problems this morning will call when ready to lift off. This was passed on to BD2.

2055 Never made it out into action.

August 8 and 10 were difficult days for the air tankers. The BCFS Resource Tracking System recorded the following information:

0919 Tanker 5 set down till he gets radio fixed

1202 Tanker 2 down for mechanical repairs

1240 820 grounded with door problems

1259 (Tanker 1) land airport radio problem

1315 Off airport to fire

1347 Down at airport still working on radio problem

The following notations are recorded in the BCFS Resource Tracking System for August 10:

1234 Mars 820 is down with mechanical problems

1807 (Venture Heli) away to Kamloops for scheduled maintenance – 8 hours.

The Riske Creek Crew Daily Activity Report for August 12 contained the following comment: "Low production due to tactical withdrawal and break down of heavy equipment."

The MOF has acknowledged the importance of these internal audits and has given its commitment to conduct thorough internal reviews of major fires.

IV. INVESTIGATING THE ADMINISTRATIVE FAIRNESS OF FOREST FIRE MANAGEMENT POLICY AND PROCEDURES

1. Central Control of Operations v. Local Decision-making

(i) The Dispatch of the Overhead ("O") Team

The **Manual** sets out the policy for the dispatch of specialty teams. With respect to the dispatch of Overhead ("O") Teams, the **Manual** states:

Each Fire Centre has access to two types of Overhead Teams. Headquarters develops and dispatches the four Type I Overhead Teams. Each team is composed of members from a variety of locations. Type I teams consist of a Class A Fire Boss, Operations Chief, Logistics Chief, and Plans Chief.

Each Fire Centre develops at least one Type II Overhead Team for use on less demanding project fires. Type II O-Team members are dispatched through the Fire Centre and consist of a Class B Fire Boss, Operations Chief, and a Logistics Chief.

The MOF has confirmed that the MOF Salmon Arm protection officer, who is a Class B fire boss, was in charge of the fire on July 29. He had a conference call with MOF personnel at the KFC on the evening of July 29. During this conference call, it was agreed to hold off on the dispatch of the overhead team until the fire had been reconnoitred the next morning.

Some of the people we spoke with told us that they had heard rumours that the first fire boss in charge of the fire was removed from his position and replaced by another fire boss. These rumours led to speculation from the general public about who was in charge of the fire on July 30. Again, the MOF has confirmed that the MOF Salmon Arm protection officer was in charge of this fire until the arrival of the Overhead Team.

The rumour likely arose as a result of confusion regarding the roles of various MOF personnel assigned to fight this fire. The Dispatch Worksheet for July 29 states: "FB 'B' eta 2100." The Resource Response confirms that this Class B Fire Boss was dispatched on July 29: "1 Fire Boss 'B'." Moreover, the KFC Command Group Meeting notes for July 29 state:

Problem Fires:

Fly Hills Fire K#285: Crews and Iron en route. (Fire Boss B) & Riske Creek UC will be on site this evening. FW & iron should be on site soon. Est. size 10 ha.

This Class B Fire Boss was not the Fire Boss assigned to this fire. The Fire Boss who was assigned to this fire as part of the Overhead Team made the following notes for July 30:

0815 working fires in Vernon Zone. Call for the O Team to go to fire 285. 1145 – Arrive in S.A.

1630 Meeting with O Team to explain situation.

The Operations Chief arrived in Salmon Arm at 1442 on July 30 and first started working the fire at 1806. The MOF has informed us that both the Fire Boss and the Operations Chief assigned to this fire were Class A fire bosses.

A historian retained by the MOF to assist with the chronology of the fire made the following note for July 30:

10/ Constraints

(i) Organization – Organization still coming together at this point.

Given the constraints that the MOF was under in fighting numerous fires in the BC interior during this time period, the Ombudsman cannot take issue with the deployment of the Overhead Team to this fire. The Ombudsman agrees with the MOF that the arrival of the Overhead Team in Salmon Arm complied with the time requirements stipulated in the **Manual**.

The Silver Creek Fire was identified at the outset as a problem fire. Moreover, by August 4, its status was raised to a “complex fire.” Nevertheless, a Silver Creek resident stated in her interview with our Office:

One thing that I was very upset about on July 30, which was the day after the fire, on the news report that I am sure you can get, they called it a project fire and I thought this is no project.

The MOF states that the public’s concern that this was a “project fire” is a result of a misunderstanding of the terms used. The MOF explains that a project fire is a common term, synonymous with a “Class A” fire. The MOF states further that it became aware of this confusion by people in the community at the time and tried to advise the public of its classification system. Despite this, some individuals perceived that this fire was treated as some sort of “training project.” Our review has found no substance to the rumour that the MOF treated this fire as a “project fire” or “training project.”

However, our review has also found that confusion persists in the minds of the general public concerning the MOF’s classification system. The MOF has

acknowledged that this confusion continues to exist and it has undertaken to make a greater effort to inform the public of its fire classification system in an attempt to avoid this type of confusion of terms in the future.

The **Manual** stipulates:

An Overhead Team usually manages a single large project fire, although they can handle some multi-fire situations as well.

The Fire Boss assigned to the Silver Creek Fire was also working Fire #247 at Ansty Arm. In fact, on the day of the fireball and evacuation order for Silver Creek on August 5, the Fire Boss was working Fire #247. As the notes indicate, the Fire Boss actually found out by message at 1330 that the evacuation had started on the Silver Creek Fire.

The Ombudsman accepts the MOF's response that it is common for a fire boss to handle more than one fire. As the MOF explains, the Operations Chief assigned to this fire was also a Class A fire boss. While the Ombudsman accepts that circumstances required the Fire Boss to be working two fires at the same time, the preference expressed in the **Manual** of having all members of an overhead team manage a single large fire is a sound one and should be followed wherever possible. The pressure that a fire boss is faced with in combating a single large wildfire must be incredible; this pressure should be recognized and alleviated wherever possible by ensuring that a fire boss work on one large wildfire at any given time.

During our discussions with another Class A fire boss who was in charge of the Silver Creek Fire from August 12 to 14, he informed us that this issue is currently being analyzed by the MOF Protection Branch.

In fact, the Inter-agency Emergency Preparedness Council (IEPC) is in the process of developing a comprehensive "all hazards" provincial emergency operations system. The BC Emergency Response Management System (BCERMS) will provide a framework for a standardized provincial government response to all emergencies and disasters. The BCERMS will be based on the Incident Command System (ICS). ICS has been defined as follows:

The combination of facilities, equipment, personnel, procedures and communications operating with a common organizational structure, with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident." (Firefighter's Handbook on Wildland Firefighting: Strategy, Tactics and Safety, Deer Valley Press, Rescue, California, 1994).

Rather than a “Fire Boss” being in charge of fighting a wildfire, an “Incident Commander” will be in charge of an “incident” (e.g. a major fire or a certain area with a number of small fires). Incident command training is carried out at the Justice Institute in Vancouver. The goal is to have all emergency response agencies working within the same system (BCERMS). The BCERMS draft, p. 6, sets out its purpose and scope:

The British Columbia Emergency Response Management System provides a framework for a standardized provincial government response to all emergencies and disasters. The objective of the BCERMS is to ensure that the province responds to emergencies and disasters in a coordinated and efficient manner. The BCERMS requires that provincial key and supporting ministries and government agencies use this system.

(ii) Decisions Concerning Direct Fire Suppression

Many people we talked to were concerned about the perceived lack of local control for fighting the Silver Creek Fire. Moreover, they were critical of the amount of resources used by the MOF to fight this fire.

According to the **Manual**, the Fire Boss is responsible for direct fire suppression activities. Section 12.8 a) stipulates:

Fire Boss directs the following activities:

- *Handline construction*
- *Burn off*
- *Water delivery and hose lay*
- *Tree falling*
- *Use of heavy equipment*
- *Air support*

Section 13.8 of the **Manual** is entitled “Direct fire suppression activities according to standard operating procedures and the Fire Analysis Strategy.” Section 13.8 stipulates:

- a) *Fire Boss directs fire suppression to meet objectives specified in the Fire Analysis Strategy, within the framework of safety, training, and cost-control identified in the Preparedness Plan.*

....

- c) *Headquarters coordinates and prioritizes provincial suppression resources.*

The *Fire Analysis Strategy* for August 4 was completed by the Fire Boss at 0800. His fire control strategies included:

Establish cat guard along the east flank as high on the hill as possible. Burn off between cat guard and fire.

Hook road system to cat guard on west flank & burn off.

The Fire Centre Manager, KFC, completed his portion of this August 4 *Fire Analysis Strategy* at 1000 hours. He confirmed the strategy, writing: "Control line cat guard below fire. Burn off."

The Operations Chief confirmed the plan for August 4 in his statement prepared for the MOF:

Perhaps the most difficult decision was to establish a cat guard along the east flank, or the downhill area, as high up the hill as possible. The plan was to burn off the hillside between the cat guard and the fire, if we had time and the right conditions.

We found the following notations on one of the Air Tanker Reports for August 4:

1038 Tanker action commences (fixed wing)

1041 Fixed wing tanker action ceases. Will take too much time and commit A/C for support action.

The MOF has advised the Ombudsman that even if there had been unlimited resources available to fight this fire, the fire could not have been stopped at a point that would have prevented the tragic property damage that occurred in the Salmon River Valley.

The MOF documentation that we have reviewed highlighted two concerns with respect to the August 4 fire suppression efforts. First, there was an inference that the KFC, rather than the Overhead Team, made the decision to discontinue a plan to lay a retardant line around the fingers of the fire. Second, there was an inference that insufficient heavy equipment was used to establish the cat guard along the mid-slope of Fly Hills.

The following comments by the MOF Operations Chief with respect to the August 4 fire strategy emphasize these two concerns:

1010 BD (Bird Dog) 51 over fire and we discuss objectives. Worked 2 drops and was pulled by central dispatch. The objective was to run a retardant line on the fingers dropping from above Salmon River. Objective would take too long to achieve and cats are 2 days from supporting the line.

We have discussed these concerns with both the Fire Boss and the Operations Chief assigned to this fire. The Ombudsman is satisfied that the explanations provided by

the Fire Boss and the Operations Chief with respect to these two concerns and summarized below are consistent, reasonable and credible.

The retardant was to be used to cool and slow down the progression of the fire. The idea was to lay a retardant line along the perimeter of the fire in an attempt to corral the various fingers of the fire. Fixed wing air tanker action commenced to lay this retardant line. Two drops were completed. The Bird Dog operator and the Operations Chief determined that the fixed wing aircraft were not capable of providing the necessary accuracy for this part of the operation. The decision was made by the Operations Chief to discontinue the fixed wing action and request rotary wing (helicopter) support from the KFC. Helicopter (S61s & S64s) retardant drops were then made on the various fingers of the fire.

The Operations Chief has acknowledged that his use of wording excerpted above, namely, "was pulled by central dispatch," leads one to the inference that it was the KFC, and not the Overhead Team, making decisions concerning air support, which, of course, would be contrary to policy stipulated in the **Manual**. The Operations Chief has clarified that he sent the fixed wing support back to central dispatch. He is adamant that he, not the KFC, made the decision to discontinue the fixed wing action. The Ombudsman accepts the Operations Chief's explanation as reasonable and credible.

The second inference that the documentation raises is that there was insufficient heavy equipment to support the August 4 fire analysis strategy of establishing a cat guard high on Fly Hills and burning off between the cat guard and the fire. The fire analysis strategy of August 4 to establish a cat guard high on Fly Hills and burn off was adopted in response to events on August 3 when the fire grew from approximately 40 hectares to approximately 300 hectares. This high guard was discussed on August 3 and the MOF began constructing the cat guard from existing old roads on August 4.

Both the Fire Boss and the Operations Chief maintain that the fire suppression efforts were not hampered by a lack of equipment to construct this fireguard. An excavator and two cats were working from each end of Fly Hills with the intention of meeting in the middle, having achieved a complete cat guard. The objective was not met prior to the occurrence of the strong winds around 1300 on August 5, which precipitated the subsequent fireball.

As the Fire Boss and the Operating Chief have explained, the topography of Fly Hills prevented the machines from cutting a fireguard directly across Fly Hills. Moreover, given the steepness of the terrain and the limited access available, the Fire Boss and the Operations Chief are convinced that neither more heavy equipment nor more ground crews could have been utilized to help construct this

guard. Given the weather forecasts, the MOF was predicting the strong winds to start during the evening on August 5. Instead, the winds began at 1300.

According to the Fire Boss, a secondary cat guard had been constructed along the base of Fly Hills by August 4. One of the MOF personnel who was very involved in fighting this fire stated in an interview conducted for the MOF that burning off all of Fly Hills from this lower cat guard was a viable option. We have discussed this opinion with the Fire Boss. In his opinion, this was never a viable option. As the Fire Boss explained, the MOF would have then been faced with an approximately 1600 hectare fire, which, depending on the winds, could have created far more damage.

As stated, the Ombudsman finds that the evidence presented by the Fire Boss and the Operating Chief is reasonable and credible. Accordingly, the Ombudsman is satisfied with their explanations pertaining to these two concerns highlighted in the MOF documentation.

(iii) Dispatch of Resources from Central Dispatch

Another concern raised during this investigation is the effectiveness of dispatching from central dispatch. For example, the MOF Salmon Arm protection officer stated in his interview conducted for the MOF:

We did the resources for initial attack but because of my knowledge of the area, the initial requests were coming in from the overhead team to Kamloops, for more equipment to this and that but it wasn't very long before I realized that those resources could not be obtained quick enough so I went to the Fire Boss and said I know you are making your requests to Kamloops but I think I can make it quicker. Do you mind if I short circuit this for a day and a half until you pick all my resources out of my brain and my pre-org book? And he said please do that.

We note as well this comment:

(Logistics Chief) asking to call Abbotsford directly for a logistics request. ... Must put requests through KFC. (Logistics Chief) is complaining that it takes 12-24 hours before requests sent from KFC to Abbotsford.

The MOF has responded to these kinds of concerns as follows:

Centralization of some functions is the result of careful consideration and planning drawing on years of experience and an analysis of present and future fire fighting requirements. This organizational system was very successful throughout the province in 1998. At the time of the Silver Creek fire, there were over 625 fires burning, almost all (99%) of which were kept to a small size. The organization has

proven to be very efficient and effective. It allowed fires to be prioritized and resources to be re-routed as required, with speed. Central coordination has occurred with respect to only some fire fighting functions. The all-important tactical decisions, and a great many of the operational decisions, are made on site, by the fire boss and the overhead team. This coordination also allowed the appropriate prioritization of air tanker requests coming from other fires in the province at the same time. On this particular day, there were 23 other requests for airtankers, many requiring multiple aircraft to respond, yet despite this, four airtankers were able to respond to this request due to the central coordination of the airtankers and the high priority given this fire. The decisions regarding the fixed-wing start and finish times, were made at Air Command. It is they who best know the rules set out by the Ministry of Transport as to flight hours and duty days. They also know the mechanical condition and MOT flight restrictions as to mandatory repair of the aircraft. This centralization is key to the safe, effective and ready availability of the large air force required to fight this type of fire, wherever they may occur throughout the province.

The Ombudsman is satisfied of the need for a central organization for resource distribution. Given the fire season that the MOF was faced with last summer, it is unlikely that resources could have been distributed as required in any other way. Having said this, the concerns raised by the MOF personnel should be examined with a view to making improvements in the system if necessary. The Fire Boss in charge of the Silver Creek Fire agrees that the system can be improved.

(iv) Assessment of Local Weather Patterns

One of the concerns expressed by many of those interviewed is that the MOF did not have sufficient knowledge of the local wind patterns in the Salmon River Valley. Given the history of winds in this valley, an analysis of fire behaviour in relation to the local weather patterns would appear to be essential. In his report for July 30, the historian retained by the MOF stated: "No specific comments can be found relative to fire behaviour."

In his interview concerning the Silver Creek Fire conducted for the MOF, the Fire Boss had this to say about the wind events of August 3 and August 5:

Well, they were much stronger than predicted. The original wind that came in was not predicted, and I am talking the first blow out, if you will, that went from 40 ha. to approx. 300 ha. That wasn't a predicted wind and pushed that out. As far as the main wind event that brought the fire down slope and across up onto Mt Ida, the weather, we had warning that there would be a passage of a cold front, and the timing of that would be sometime between 8 and 9 in the evening or later, was the way it was described. And we expected winds of 30 to 40 km for approx. two hours

in duration. What happened was the wind came at 1:00 in the afternoon and lasted approx. 12 hours.

In 1973, when the Gleneden Fire swept through the Salmon River Valley, unpredictable winds were blamed for the prescribed burn getting out of control. A Board of Inquiry was appointed to review the Gleneden Fire. The comments made by Dr. J. Harry G. Smith in ***A Review of the Natural and Managed Roles of Fire in the Forests of BC and in Related Areas, (The Eden Fire - Book 2)***, p. 23, are insightful:

15. The wind that occurred on September 11, 1973, was not uncommon for that time of year. The wind factor was not sufficiently considered during the planning stages nor was the probability of winds considered on the burning prescription.

Unexpected winds or other erratic weather patterns are in fact blamed for most prescribed burns. These 'erratic' weather patterns, however, are often found to be predictable when historical weather data are collected and incorporated into the burning prescription.

One of the key recommendations of the ***Eden Fire Review*** was this:

1. That the technical weather experts be added to the BC Forest Service establishment and stationed at each District Office.

An analysis of the MOF documentation concerning the Silver Creek Fire reveals a significant contrast between weather analysis pre- and post- August 5. After August 5, orders were placed for ground stations (see explanation below) radio sound and weather balloons. Weather balloons were ordered launched on a regular basis.

We spoke with the MOF person who was in charge of coordinating weather forecasts and supplying this information to the MOF fire behaviour specialist beginning on August 6. He had no involvement prior to this date. This person had been an experienced Class A Fire Boss with many years of firefighting experience. He is a member of the local MOF Salmon Arm Forest District.

He told us that he set up ground stations (emergency weather systems - TM1s). These stations provide all the necessary weather data such as wind speed, wind direction, relative humidity and temperature. He also purchased a portable weather station that he set up on the top of Fly Hills. It takes ten minutes to set up and location is the most important factor in its effectiveness. The MOF person in charge has advised us that the collection of weather data from all of these stations was excellent and that these stations worked perfectly.

This MOF person does not believe that there were any ground stations set up prior to August 6. He believes that the MOF was relying more on regional weather forecasts than local weather forecasts prior to the set-up of the ground stations. He suggested that spot forecasts were probably coming from Kamloops. The documentation and the MOF response support this.

We spoke with the provincial (MOF) fire weather specialist who was brought to Kamloops from Victoria on July 29, 1998, to assist with spot forecasts in the area. He confirmed that he was receiving weather data from the Salmon Arm weather station located at the Salmon Arm airport. He would use this data to plot fire behaviour projections on charts and then fax this information to the Plans Chief at the Silver Creek Fire. This MOF fire weather specialist confirmed that there were no ground stations set up prior to August 6. He explained that these ground stations are referred to as "quick deploy weather stations." They can be set up in one to two hours. He stated that the MOF has four of these quick deploy weather stations in Victoria, which are reserved for emergencies. According to him, it is a matter of placing a call requesting them and they "can get them quickly." He also advised us that the MOF had four or five of these stations "on shelf at Kamloops." This MOF weather specialist confirmed that once the fire behaviour specialist was on site at Silver Creek, she put in an order for these stations.

This MOF fire weather specialist explained that the whole idea of the "quick deploy" is to deal with local weather situations. He explained that if there is a "representative" permanent weather station within five to ten kilometres from the fire, then the quick deploy stations are not necessary. If the permanent weather station is not "representative" or if it is not within ten kilometres, then the quick deploy weather stations should be used. We contacted the MOF District Manager, Salmon Arm Zone, and asked him how far the Salmon Arm weather station, located at the Salmon Arm airport, was from Fly Hills. After doing a rough calculation on his map, the MOF District Manager estimated that it was 15½ kilometres from the Salmon Arm weather station to the initiation point of the fire on Fly Hills.

The MOF person in charge of getting weather forecasts and supplying this information to the MOF fire behaviour specialist beginning on August 6, informed us that the Salmon River Valley is "really strange." He emphasized that it is very important to have localized weather forecasts. For example, the weather pattern at the Salmon Arm airport can be very different from the weather system in the Valley. He advised that strong downhill winds occur in the Salmon River Valley, which is "very unusual." The MOF fire weather specialist stationed in Kamloops confirms that he had heard that the Valley "can get interesting winds." This MOF fire weather specialist has also confirmed that while he was hoping to get out to Silver Creek, he was never on site nor did he fly over the area.

The observations regarding the Salmon River Valley winds were echoed by a number of the Silver Creek residents we interviewed. One of the Silver Creek residents interviewed expressed a commonly held sentiment. He stated:

I want the question answered is why they did not tell us because why did they not really concern too terrible much about the wind the day we got burned out but when Salmon Arm was threatened, they knew the velocities, the wind was coming in at such and such a time, you know, they also got a lesson on weather or did they just not take us seriously either, just not realize what can happen in that valley with winds.

The MOF's response to this criticism is as follows:

The Salmon River Valley has local weather patterns, as do many places throughout the province. Our fire behaviour specialists are well aware that local anomalies can influence fire behaviour. For this reason, residents were consulted from the start of this fire, to incorporate local knowledge into our analysis.

Many of the key personnel, who were involved at the beginning of this fire, were local people. Fire wardens and the staff of our Salmon Arm district office were all involved from the start. They had good local knowledge and that was used by the overhead team. Some members of the public seemed to think that, if our fire behaviour specialists were based in Victoria, they must be ignorant of local conditions. This is not the case and the regular home base of our specialists had no bearing on their ability to determine the fire spread.

Weather specialists were on the local scene and were providing information to the on site overhead team. This was not a 'Central Control' function. In evidence, consider that (the) provincial weather specialist was in Kamloops from July 29 to August 15. He provided (the Plans Chief) who was on site locally, with information daily. The two conversed and local information was added to the broader weather picture available through (the provincial weather specialist).

(A Fire Boss 'B') assisted with fire behaviour predictions locally. We moved (the fire behavior specialist) to the scene on August 3. As of August 5, we assigned (another fire behavior specialist) to the fire as well. This increase of staffing was not an indication of insufficient staffing at the start of the fire, but rather, was required to give some rest to the existing staff and also, to respond to the degree of danger, reasonably allocating our manpower resources, as the fire grew in size.

We also questioned the MOF person in charge of weather data collection from August 6 about handwritten notes that he had written on August 10 and 11, which read:

(DP) and 1 person arriving with new mini source system and computer system for forecaster. ETA 1530 Kelowna airport. (August 10)

(DP) arrived (AES) to trouble shoot radio-source & weather forecaster problems. (August 11)

This MOF person has explained that these notes were in relation to the upper air weather system (launching weather balloons with radio sound). He has advised us that this was a weak point in the organization. It took four to five days to get this system up and functioning properly. He explained that because of a whole range of problems, including incompatible software and broken cables, the system was not fully functioning until August 11. He explains further that these units are rarely used (only in emergency situations) and, for the most part, remain in storage. He suggests that these units should be fully tested each spring to ensure that they are functioning properly and that, when delivered, these systems be accompanied by experienced operators.

We have been advised by the MOF fire weather specialist that there is a network of approximately 215 automated weather stations located throughout the province. He advises us that these weather stations were designed for preparedness planning and determining fire danger/hazard ratings; they were not set up to deal with wildfires. Understandably, it is not possible to have permanent weather stations located in close proximity to all wildfires. However, if these permanent stations do happen to be located close to a fire, they can provide important weather data. He explains further that it is best to have weather stations close to a fire to get the weather data.

The data from these permanent weather stations is collected once per hour and relayed to Victoria where it is analyzed and placed on a server where it can then be picked up by the local zones. Of the approximately 215 permanent weather stations, 61 have been upgraded with new technology; the remaining weather stations are using older technology. The older technology is over ten years old. The Salmon Arm weather station located at the Salmon Arm airport is using this older technology. The MOF fire weather specialist explained that there is little difference between the older and newer technology in terms of data. In terms of wind speed, he states that there is very little difference over the mid-range. In terms of relative humidity (RH) readings, he states that there is definitely a difference between the older and newer technology. The newer technology has a different method of sensing which, at the low end, is more accurate. Finally, the newer technology allows for quicker access.

The Fire Boss has acknowledged that the August 5 wind event was not well predicted (in terms of time, duration and force). Moreover, he has acknowledged

that the August 3 wind event was not predicted. Given this, the Ombudsman is of the opinion that the MOF should conduct an in-depth study to assist the MOF in achieving more accurate local weather readings when fighting wildfires. As the MOF fire weather specialist we spoke with suggested: if warranted, quick deploy weather stations and on-site forecasters should be used. Both of the MOF people we spoke with on this topic agreed that forecasters should either be on site, or, if this is not possible, have a fly over the local area to see first-hand what they are forecasting about. Finally, consideration should be given to upgrading the remaining permanent weather stations that are still using the old technology.

2. Hours of Work for Heavy Equipment Operators and Ground Crews

Another major concern expressed by people we interviewed was the start times for heavy equipment operators and ground crews. For instance, one heavy equipment operator interviewed said:

But my biggest concern was that they didn't start early in the morning and get going. Like the loggers when they put an early shift, they have to start at 4 in the morning, and out of the bush by 12 noon.

The Overhead Team appears to have recognized that earlier starts were necessary. In his statement provided to the MOF, for instance, the Operations Chief explained that on August 1, referring to starting times for August 2: "We did adjust our crew times to start from camp at 0530 which meant up at 0430 for the next day." However, the evidence does not bear this out. An examination of the Unit Crew Daily Activity Reports show that both the Merritt and Sto:lo crews started work at 0700 on August 2.

A note of the Division Boss, for August 3 states: "2215 Advise operators of 0600 start." His note for August 4 is, "0705 meet with operators at safety zone." We see in the Plans Chief's notes for August 4, the following notation: "Try to start earlier to beat heat and winds." The BCFS Resource Tracking System for August 4 records that the Sto:lo Crew were en route to the fire at 0708 and the Merritt Crew were en route at 0701.

A comparison of the start times for ground crews is instructive. We found a handwritten note for August 6 which states: "Plan to reinstate the Early shift so we beat the heat 0430 breakfast 0530 hit the road." A review of the unit crew daily activity reports shows that ground crews were starting at 0700 until August 7.

The MOF's response to the criticism that crews should have started earlier is as follows. Crews could only work on a fire to which there was access. The MOF has

advised the Ombudsman that the most effective time to work the ground crews was later in the afternoon when the need for suppression resources was the greatest due to high temperatures and low humidities. Crews can work for only a certain number of hours. The MOF states that it used this resource in the most effective manner it could. The MOF varied the start and stop times of crews throughout this fire, reacting to its fire plan and the fire's behaviour. The MOF states further that, according to the resource summary sheets, crews started at either 0530 or 0700 on different days. According to the MOF, this was done to alter the attack to most efficiently use the manpower because of the difficult access situation on this fire. The MOF explains that the decisions to attack, to retreat, and to use the air or the ground forces can be made only by those on the scene. The most important consideration is the safety of those fighting the fire. Later, after the fire had spread to more favourable ground, the MOF was able to spread the work time of crews and equipment around the clock. This is borne out by the evidence. The Ombudsman accepts the MOF's response that it is important to consider that, in the dynamic and ever-changing front-line firefighting, these decisions must be made by those in charge of the attack on the fire. Site-specific decisions must be made on how most effectively to deploy the crews, equipment and aircraft. The MOF rightly states that members of the public located in the valley below, or individual machine operators cannot have the full overview of the fire that is available to the fire boss or the overhead team.

The Ombudsman is not in a position to question the MOF on the start times of ground crews. These decisions must be made by those in charge of the firefighting efforts, based on a myriad of factors. However, if ground crews are expected to start at designated times, procedures must be in place to ensure that they do so.

A related concern that some of the heavy equipment operators expressed to us was why they were not permitted to work at night. We spoke with heavy equipment operators who told us that they had fought other wildfires in the past and had always worked through the night.

Regarding this issue, the MOF Operations Chief wrote in his statement for the MOF:

I was aware of this opinion, however, with my experience in fighting fires and knowing that this was a wild and severe fire, I could not put my crews up there at night without aerial support. There was no escape route, these were unsafe conditions; it simply would not have been standard practice, particularly under these heavy fuel loads, the fact that there was lots of snags and with the access difficulties.

The Ombudsman is satisfied that safety concerns prevented the use of crews and equipment on the fire at night during the early stages of the fire. Once the fire

progressed onto lower ground, both heavy equipment operators and ground crews were able to be used on fire suppression at night. The obvious explanation for permitting equipment operators and ground crews to work at night at this point was that access and escape routes were not an issue. The MOF has advised that with only one road into the area, safety of personnel on the fire was a major concern. The Ombudsman agrees that it would have been irresponsible and dangerous to put manpower and equipment into this scene at night, without the benefit of escape routes or helicopter observation support. For this reason, over the first five days, no night shifts could be used. The Ombudsman accepts that the MOF acted professionally and prudently in not putting crews on the fire at night under these conditions.

3. Use of Aircraft (the Martin Mars and the CL415s)

Another area of concern relates to the use of aircraft on this fire. Our review reinforces the need for a thorough study of the type of aircraft used to fight wildfires of this nature. This need for a review was recognized by the MOF in its internal debrief:

Aviation should undertake an analysis of the various types of aircraft and their costs and productivity rates and develop a guideline to assist in future decision-making where multiple (types) aircraft are to be used on a fire.

(Salmon Arm Fire Debrief, Oct. 29/98, critique #5).

The comments made by MOF personnel fighting the Silver Creek Fire highlight the need for such a review. There was considerable negative comment by MOF personnel concerning the use of the Martin Mars and the CL415s.

As the MOF has explained, in these hot dry conditions, with a well-entrenched fire, there are limits to the effectiveness of aircraft. The Ombudsman agrees with the MOF that comments received from the public regarding the lack of use of the Mars or the CL415s are largely based upon the general public's limited understanding of the nature of forest fires and the role of these large aircraft. To the public, these huge aircraft are impressively large and surely must be able to put out the fire with a single load. This perception is understandable, but incorrect.

The MOF has acknowledged that an analysis or study is required to address the conflicting challenges of using aircraft for initial attack and support action on larger fires. The Ombudsman agrees with the MOF comments that, in modern firefighting, there is access to a wide range of aircraft, each of which has merits and drawbacks. In this case, the Martin Mars was just one tool in the overhead team's arsenal. As with so many of the tactical decisions, the choice of which fixed-wing and which rotary wing aircraft to use in any given situation is something for which the overhead team is responsible, based on its experience, training and judgement.

4. Hours of Operation of Pilots

Another criticism raised by people observing the fire suppression efforts is that there did not appear to be sufficient air resources devoted to this fire. When asked at the August 4 meeting why the water bombers were not working at daybreak, the Fire Boss responded: "Pilots are restricted to 8 hours flying time a day. We need to have them up during the peak hot hours." The Operations Chief had the following comment in his statement:

"We had our first S-61 bucketing by 7:30, but of course, we were concerned about the duty day for the pilot. If you use up your pilot hours in the morning, you can be limited in the evening due to the 14 hour duty day, so consideration must be given for start up times barring fire conditions."

The MOF's position on this issue is as follows. The MOF has explained that weather conditions make flying in the morning and late evening both unproductive and very difficult. The fire bosses know the approximate amount of time during which they can use each pilot and machine and they allocate those resources as best they can throughout the day. As the MOF explains, to the public, huge helicopters such as the Sikorsky S61s, which were used extensively on this fire, ought to be able to fly into this fire continuously. In fact, the machines require maintenance and the pilots experience fatigue. The pilots are highly skilled; they are able to do precision drops onto a blazing forest fire in very extreme conditions. After six or eight hours of this, fatigue becomes a major factor for both safety and tactical reasons.

In an MOF interview, the Assistant to the Airport Manager, Salmon Arm airport, made this point clear when he said:

"[I]n the morning, you would watch the helicopter pilots land and they would drop the skids on perfectly, right beside the fuel pump. By the end of the day, the same pilots would be landing and they would be wobbling all over the place. You could hardly believe it was the same person."

The MOF also stated that the availability of experienced pilots is finite and the Ombudsman agrees with this statement. All areas of the BC interior were extremely busy with fires and additional qualified pilots were simply not available despite the MOF's prioritization system. In a world of unlimited supply of these highly qualified individuals, the MOF could have increased the amount of flying time.

5. Use of Local Loggers

Many of the people we interviewed expressed the sentiment that local loggers should have been used to fight this fire. Here is a typical comment from a person

interviewed, which sums up the concern regarding the lack of use of local loggers. He stated:

[T]here's over 1000 loggers volunteered their help for the fire, and they were rejected because they had said that they didn't have enough firefighting experience. They didn't have the course.

The Ombudsman accepts and agrees with the MOF's position that untrained firefighters simply cannot be used in situations such as that faced by the MOF in the Fly Hills from July 29 to August 5. The MOF has advised the Ombudsman that not only could it not send more trained ground crews into this fire because of the lack of escape routes or access to the fire itself, it certainly could not use *untrained* people in this situation. The evidence clearly supports the MOF's position on this issue. During the August 4 meeting, the Fire Boss was asked why the MOF was not hiring locals to fight the fire. He responded: "Safety is the number one priority. We need to have the most trained and qualified working this fire. If local crews are hired, they will be required to undergo training." The MOF also pointed out that a coroner's report dated November 29, 1991 on this issue, which followed the unfortunate death of a logger in Sechelt on August 1, 1991, who was overtaken by fire, specifically addressed this issue. The report found that in that case the man's death was due to his lack of knowledge of fire behaviour and that he was physically unfit for the rigours of firefighting.

It is important to set out some of the coroner's recommendations:

6. *That forest company supervisors receive formal training in fire suppression methods, organizations, chain of command, crew safety and communications.*
7. *That all forest workers who may be called upon to work at fire suppression duties receive formal firefighting training before they can be deployed for this purpose. No worker who has not received such formal training should be required to perform firefighting activities. Records, and documentation of such training should be readily available for inspection by regulatory agencies.*
8. *Firefighting training of both supervisory personnel and forest workers should not be a one-time exercise. Periodic refreshers, drills, practices, and familiarization with equipment should be required. Individual, ongoing documentation of such training should be kept current; the W.C.B. should monitor these training records to ensure firefighting preparedness.*
10. *Regardless of previous firefighting training, only workers who are physically fit and familiar with working in heavy brush conditions should be assigned front-line firefighting tasks.*

(Coroner's Report, November 29, 1991, Case No. 91-302-0034)

The Ombudsman agrees with the MOF's position that the potential consequences associated with permitting untrained local loggers to fight wildfires could be catastrophic. The MOF would no doubt be faced with challenges from those who claim that the MOF was acting contrary to the recommendations of a coroner's report or the *Industrial Safety* regulations of the Worker's Compensation Board. The Ombudsman endorses the recommendations of the coroner, set out above.

6. Use of Heavy Equipment

There were also concerns raised about the amount of heavy equipment used to fight this fire. We have already discussed this concern in relation to the August 4 fire strategy.

Our review of the Silver Creek Fire documentation has revealed references to the need to obtain more heavy equipment to fight this fire. For example, we see a fax from Riverside Forest Products to the MOF Salmon Arm Fire Zone, August 3 at 1751:

Available manpower and equipment:

THIS IS ALL I CAN CONTACT RIGHT NOW! WILL CONTINUE TO CONTACT OTHER CONTRACTORS!

As well, a handwritten note of August 3 from the Command Meeting stated: "We will have to use a lot of machinery in the next few days." In the BCFS Resource Tracking System, we find the following notation for August 4 concerning the MOF Division Boss: "1314 NEEDS MORE SUPPORT". Similarly, the BCFS Resource Tracking System Log General for August 5 reported:

2002 Jim asked us to call the major licensees and get them to round up cats and heavy equipment.

A handwritten note for August 5 reads: "2350 Dst people and Rick trying to find cat."

In response, the MOF advises that it does have a system in place for the cataloguing of heavy equipment and operators throughout the province. The MOF says that it is satisfied that this system worked very well on this fire. The MOF maintains that in its review of this issue, it found that the equipment supply was adequate for its daily needs. After the August 5 escalation in the size of the fire, more equipment was needed and that need was quickly met. More than 175 pieces of equipment were used on this fire according to the MOF. The MOF states further that at one point the fire suddenly grew from 400 to 6,000 ha. and the MOF had no difficulty locating additional equipment.

The MOF's response should be read in light of its own internal review. The MOF **Silver Creek Fire Debrief**, critique #4, states:

4. Bulldozers and heavy equipment should be catalogued prior to commencement of the fire season. The catalogue should be similar to the pilot and aircraft list maintained by Aviation and wherever possible preference should be given, for safety and productivity reasons, to those operators who have demonstrated skill, safety and productivity related to fire fighting.

The evidence reviewed and the MOF's own internal debrief leads to the inescapable conclusion that the present system of cataloguing heavy equipment can be improved. The Ombudsman is of the opinion that the MOF, in conjunction with the forest companies, should ensure that heavy equipment operators, like pilots and ground crews, have proper training in fighting wildfires and meet prescribed standards. The Ombudsman agrees with the following recommendation found in the **Garnet Fire Review** (Price Waterhouse Review, March 1995), at p. 93:

Revisit policies and procedures used to identify and qualify manpower and equipment resources which can be hired locally to fight fires.

7. Deactivation of Logging Roads

One of the local logging contractors we spoke with was quite concerned about the deactivation of old logging roads. He feels that there should be an effort made to maintain these logging roads, at least to the extent that they do not need to be rebuilt. The fire warden working the Silver Creek Fire confirmed that the MOF began rebuilding and dressing up the existing road on the morning of July 30.

Logging roads are difficult and expensive to maintain. The MOF suggests that once these roads are no longer used by the forest company that built them, they could cause environmental damage, particularly in steep terrain. The Ombudsman agrees that it is not feasible to keep thousands of kilometers of logging roads open throughout the province in areas where a fire might occur. The Ombudsman also accepts the MOF's position that if roads are open, the MOF could be faced with greater frequency of fires. Having said this, in the opinion of the Ombudsman, the MOF should revisit its policy of deactivating main logging roads in those areas designated as extreme fire hazard, so that these roads may be readily accessible to fight any future fires.

V. INVESTIGATING COMPLIANCE BY MOF PERSONNEL WITH FIRE MANAGEMENT POLICY AND PROCESS

1. The Communication System in Place

According to the *Manual*, the Fire Boss is required to ensure that a proper communication system is in place for fighting wildfires. Specifically, the *Manual* states at section 13.6 b):

The Fire Boss ensures that the following elements are in place:

Communications: *This includes numeric and voice pagers, cellular phones and land-line telephone links, Forest Service radio communications, and person-to-person communications. The Fire Boss ensures that communication facilities are functional and that crews are in a position to receive communications at all times during work shifts and during periods of alert. The Fire Boss informs the Fire Centre of any problems with communications.*

The BCFS Resource Tracking System is replete with references to communication problems associated with this fire. These references highlight communication problems between ground crews and air support, air support and Silver Camp, equipment operators and the camp, and so forth. These communication problems are a real concern and should be acknowledged and addressed by the MOF. The Ombudsman finds, therefore, that the communication that was in place to fight this fire appears to have been inadequate.

One of the repeaters in the Salmon River Valley, the purple repeater, had been malfunctioning for some time prior to the fire. The MOF was aware of this problem; however, the problem had not been fixed. The following exchange between an interviewer for the MOF and the MOF Salmon Arm protection officer confirms this problem:

Interviewee:

... the purple repeater was poor at best. I remember asking (the fire warden) the minute he called me from the telephone, for him to use as a link for my communication.

Interviewer:

You mentioned earlier that the radio link was down, is that what you mean by the purple repeater?

Interviewee:

It was not totally down but it was very intermittent. We couldn't talk to some of the crews at times and that radio link has been a problem for some time and people know about that.

Interviewer:

Is it possible to improve that?

Interviewee:

We worked on that during it and right up until today it is still a problem. The radio repeater systems in this valley are not very good at all.

Interviewee:

I have been given lots of reasons why they think it's not working... They checked it out, they replaced repeater parts, we have had them up and down numerous times and we are still trying to get the repeater changed somehow to see if we can solve the problem.

Interviewer:

It is probably a minor point, it didn't really affect the observation of the fire from the air.

Interviewee:

Only from a fixed wing point of view, anything above a certain elevation was able to contact KFC. As far as the ground operations goes, yes it did definitely have some effect on getting messages through back and forth. It didn't help the situation but thank goodness through the fire warden program and our cell phones we were able to get around that problem either through cellulars, telephones, the simplex channels, the silver and purple when it worked. Dispatch of everything was not affected but it sure wasn't the best way to go.

The MOF has acknowledged these concerns and has taken steps to address them. The MOF confirms that it is well aware of the problems with the purple repeater system and it has retained a professional to investigate. The MOF says that it has also consulted with Industry Canada and Forest Service specialists and learned that there is a local geophysical influence due to mineral deposits, which causes blind spots and other abnormalities in this radio system. The MOF states that when this fire occurred, the MOF reacted without delay and established a local Type A repeater in an attempt to correct this. This was done on August 2. The MOF has confirmed that it is committed to continuing to address the necessary repairs to the purple repeater system.

The MOF states further that knowing this problem, it also relied heavily upon cellular phones. The MOF advises that this worked well until the cellular system failed due to heavy usage during the incident of August 5. Also, we have been told that the air operation used the MOT standard radios in their aircraft. The MOF reports that there were no abnormal difficulties with their system.

The MOF has acknowledged the communication difficulties that occurred during this fire and has given assurances that it will use this experience to improve its overall communications system.

2. Air Operations Boss

It seems clear from our review that an Air Operations Boss should have been designated to coordinate the air support for the Silver Creek Fire, but was not so designated. There was a Resource Request made on August 2 for a rotary wing attack officer, which does not appear to have been filled. During the early stages of the fire, it appears that the Plans Chief was acting as the Air Boss. Yet, the notes indicate that he went home to sleep during the day on August 4.

During a KFC Command Group Meeting on August 5, we find these general comments which do not appear to be specific to Salmon Arm:

*9. – Structure in terms of aviation management is poor – Ken is running it by himself currently. Needs a couple of people at the least. If we have district availability, we should be able to get more then. There was nobody to assign priorities or marshal aircraft – it was basically crisis management.
- Probably won't be getting a rotary wing or Birddog officers*

The Plans Chief made the following resource request at 1142 on August 5:

1 fixed wing AAO

Comments: ... Serious safety concerns. Existing R/W AAOs cannot direct all aircraft and direct helitanker operations at the same time.

One of the bird dog officers offered these observations during his interview conducted for the MOF:

There was a hole in that rotary wing bird dog officer to the air boss. There wasn't anything for quite a period of time. And that being a very expensive operation and very dangerous operation, like many, many machines, I see us probably very exposed there.

... nobody could do that – air ops and another job. It's just impossible... they really didn't fill that position. – lots of people taking turns being air ops boss.

During a KFC Command Group Meeting on August 12, this deficiency appears to have been recognized:

5 Aviation

- *Need strong air boss in Salmon Arm.*

The Silver Creek Fire started on July 29. On August 13, the need for an Air Boss had still not, it appears, been adequately addressed.

The MOF has acknowledged that the Air Operations Boss is one of the most important positions during a major wildfire suppression operation. The MOF advises that in modern forest firefighting, especially when dealing with a relatively small fire in mountainous terrain, the Air Operations Boss must act as the air traffic controller and director of air operations. The MOF states that this task was performed by various people over the active life of this fire. The MOF states further that because of the exceptionally busy fire activity, the MOF was operating at its maximum capacity; despite this, the function was always carried out by qualified personnel. The MOF maintains that this position was filled by experienced personnel from the first day of the fire until the fire was extinguished. The MOF confirms that the air operations could not proceed without an Air Boss. However, the MOF believes that there was an adequate system of appointment in place to ensure that as one person fatigued that person could be replaced. The MOF states further that as the size of the air operations increased, the need for more supervision, not only in the air but also at the airport, became apparent. This increased the requirement for the air supervisory functions.

Given the incredible strain on resources over the course of this busy fire season, we do not doubt that the MOF was doing its best to fill this position. Nevertheless, the early requests for a designated Air Boss do not appear to have been filled. This deficiency must be addressed to ensure that the Air Operations Boss is in place when requested and required.

During our discussions with the Class A Fire Boss who was in charge of the Silver Creek Fire operations from August 12 to August 14, he confirmed that this has been a problem for a number of years. He informed us that the Type 1 Commanders (Class A Fire Bosses) have told the MOF that the Air Operations Boss must be put on standby in cases of potential major wildfires.

3. Accuracy of the MOF Documentation

The **Silver Creek Fire Debrief** addressed this concern. The **Debrief** stated:

*The provincial, Kamloops and zones need to review the Initial Fire Report (IFR) procedures to clarify the times entered on the IFR by patrol pilots and times when received at the dispatch centre. It appears the pilot entered the time at arrival **over** the fire then transmitted the report after the normal loiter (which could take 5 to 10 minutes). The time of actual **transmittal** should be clearly noted on the form and the time of **receipt** at the fire centre should also be clearly noted as well as the time of air support request. As close as possible, these times should be entered into, and maintained on a computerized record.*

Our review has also found a number of inconsistencies between the Unit Crew Daily Activity Reports and the BCFS Resource Tracking System. Further, some of the documentation concerning the August 4 fire strategy described previously in this report was inaccurate and led to concerns that required clarification.

The MOF acknowledges that accurate documentation is important, but must be considered within the limitations of an emergency response situation. The MOF concedes that under the pressure of this intense activity, and with the single-minded goal of extinguishing the fire, some of the documentation may not have been adequately completed. The Ombudsman agrees with the MOF that this did not diminish its efforts with respect to fighting the fire and protecting public safety. The MOF realizes that greater accuracy of documentation would be most useful.

The Ombudsman supports the efforts made by the MOF with respect to documentation gathering and record-keeping. The MOF did establish a specific section at the Emergency Operations Center in Salmon Arm specifically to collect documentation. The MOF also retained a historian to collect documents on a daily basis for later analysis. The Ombudsman agrees that these were important steps that should be recognized. The MOF has agreed that there is a need for greater accuracy of documentation, which will be addressed in future firefighting training sessions.

4. Organizational Problems

One of the key recommendations of the **Garnet Fire Review** is found at p. 93:

Develop standard forms and procedures for use by Provincial Overhead Teams to cover manpower, stores and equipment scheduling and tracking.

The assessment of what resources will be needed is the responsibility of the Fire Boss. The **Manual** stipulates in s. 13.5:

13.5 Determine expanded attack resource requirements.

- a) Fire Boss determines resources needed to implement the Fire Analysis Strategy.
- b) Fire Boss completes the Provincial Fire Equipment Depot Order (Form: FS 464) identifying the resources required in expanded attack.
- c) Fire Boss transmits the PFED Order Form to Fire Center.

The MOF has confirmed that Form 464 was completed by the Logistics Chief, not the Fire Boss. As the MOF rightly points out, many forms were completed on this fire. The Ombudsman does not want to be overcritical if this was only a minor deviation from policy. However, in light of the comments set out below, the Ombudsman does have concerns.

The Merritt Crew Daily Activity Report for August 7 notes: "Had problems trying to track down equipment that was ordered the night before." The BCFS Resource Tracking System, August 7, Rapattack Crew, notes: "1034 Equipment Staging will send another tank truck because the other one was probably needed somewhere else." The BCFS Resource Tracking System, August 9, Fire Warden, states: "0015 Confusion as to where the water truck. Anyways (Fire Warden) is walking down the road looking for him." The BCFS Resource Tracking System for August 9 notes: "0455 (a Fire Boss B) came into the office and reported that he wasn't made aware of this activity on Fly Hills and he has equipment there." The Sto:lo Crew Daily Activity Report for August 10 provides the following comment: "Mop-up previous day's burn-off with 3 skidder tankers which were slow at arriving or being organized." Another Class A Fire Boss assumed control of the firefighting efforts on August 12 for two days while the Fire Boss took some well deserved R & R. A handwritten note of August 12 written by this second Fire Boss provides these comments:

8. Complaints on organization. No[one] seems to know what is going on? Therefore we need an org chart – Sector Boss & up what do you have? What are your objectives? What do you need? Our expectations?

We have spoken with the incoming Fire Boss regarding these comments. He has explained that these comments refer to his requirement for a new organizational chart since many people had been changed because of shift changes. He has advised us that this was a note to himself to remember to get this organizational chart in place.

The Riske Creek Crew Daily Activity Report for August 13 states: "Very unproductive day, equipment disorganized ..." A handwritten note of August 14 states:

LOGISTICS: out of control ensure that our orders go through the KFCO.

We cannot expect perfection. Obviously, organizational problems will arise when faced with this type of firefighting season. It is important to recognize organizational limitations, and learn from these limitations in order to improve the system for future firefighting efforts.

5. Width of Fire Guards

Some of the heavy equipment operators who worked the Silver Creek Fire complained that the fire guards were not being effectively constructed. One of the heavy equipment operators, for instance, said that he was told to make the guards a blade and a half wide. He believes that the guards were not wide enough. He maintains that the fire “jumped many, many fire guards they built up there.” He also believes that wide fire guards could have been built at the top of the ridge to contain the fire, but this was not done.

One contractor we spoke with told us that the standard rule of thumb is to build the guards as wide as the tallest tree, plus a little more for comfort level. We have not seen the actual fire guards that were constructed during the Silver Creek Fire so we are unable to comment on the width of these guards.

The MOF’s response to this criticism is as follows. The MOF explains that the ideal width of fire guards depends very much on the situation. Is the fire movement slow or fast? Is there a strategy to back burn or not? What are the fuel loads? How much time is estimated before the fire arrives at the guard?

The MOF states that this situation was analyzed by the Fire Boss and the Operations Chief. They determined that the *ideal* guard size was a blade and a half. The MOF further maintains that had the winds been more favourable, this would have proved to be correct. The size of guards is not fixed to a standard size, but rather the size depends on many factors, which ultimately must be decided upon by the people calling the strategy.

In the ***Firefighter’s Handbook on Wildland Firefighting: Strategies, Tactics and Safety*** (Deer Valley Press, Rescue, California, 1994), retired Fire Chief William C. Teie writes, at pp. 73 - 75:

*The width of the fireline is dictated by the fuel, topography and fire behavior. **As a general rule, the fireline should be at least 1½ times as wide as the predominant fuel is tall.*** (Author’s emphasis). *In areas where you normally expect extreme fire behavior, the width of the fireline should be 2+ times the fuel height. Many times firelines will have to be much wider, compensating for expected flame length and wind direction. Line width is not controlled by the fact that you*

may expect spotting...See Figure 4.4 for general guidelines for the width of firelines.

Guidelines for width of fireline		
Fuel type	Width of cleared area	Width in mineral soil
Grass	2 to 3 feet	2 to 3 feet
Medium brush	4 to 6 feet	6 to 8 inches
Heavy brush	9 feet	1 to 2 feet
Very heavy brush or logging slash	12 feet	3 feet
Timber	20 feet	3 feet

Figure 4.4 Guidelines for the width of fireline and the width to mineral soil of various fuel types.

Anything that affects how a fire burns must be considered in deciding the width of line needed to hold or control the fire. The hotter or faster the fire burns, the wider the control line must be. There are six factors that determine the width of the fireline: fuel, slope, weather, part of the fire, size of the fire, and possibility of cooling.

Fuel - The type of fuel, height, density, size, and condition dictate fireline width. See Figure 4.5 for the effects of fuels on fireline width.

Slope or Topography - When a fireline is to be built above a fire burning on a slope, the steeper the slope the wider the line must be. This is because the fire usually burns faster and more intensely on steeper slopes. When a fireline is to be built below a fire burning on a slope, the width of the line is not dictated by the slope, but the need for trenching is indicated. The steeper the slope, the deeper and wider the trench must be. Trenching is necessary to prevent rolling burning material from crossing the fireline.

Weather Conditions - Weather conditions affect the intensity of the fire. The hotter the fire is burning, the wider the line should be.

Part of the Fire to be Controlled - A fire burns hottest, with a longer flame length, on the head of the fire. The flanks generally burn with less intensity. This dictates wider firelines on the head.

Size of Fire being Controlled - The amount of heat generated by a large fire has a bearing on the width of the line necessary to control the fire. The larger the fire, the wider the line.

Possibility of Cooling - The width of the fireline can be reduced if water is available for cooling the fuels.

The effect of fuels on fireline width	
Consideration	Concern
Kind of fuel	Some fuels burn hotter than others because of their oil content. The hotter the fuel burns, the wider the control line needs to be.
Height and density of fuels	The higher and denser the fuel, the higher and hotter the flame will burn, and the wider the control line needs to be.
Size of the fuels	Heavier fuels, such as logs, heavy limbs, and thick-stemmed brush, do not ignite easily. However, once ignited, they burn very hot for a long time and may require wide control lines.
Condition of the fuels	The condition of fuel (whether it is dead or alive or dry) affects fire intensity. The drier the fuel, the hotter it will burn, thus the wider the fireline will have to be.

Figure 4.5 How various fuels will affect the width of fireline.

The Ombudsman does not have the expertise to determine what the ideal size of the fire guards ought to have been for the Silver Creek Fire. As can be seen from the excerpt set out above, there are general guidelines for determining fire guard width. The actual width will depend on a myriad of factors. The Ombudsman is satisfied, however, that this is obviously an important issue that needed to be raised in this report. After considering the pertinent material, the MOF should develop guidelines on determining fire guard width.

VI. SUMMARY OF FINDINGS

The Ombudsman's findings with respect to the concerns that have been discussed in this report are as follows:

1. Notice to Silver Creek Residents

The Ombudsman finds that the measures taken by the MOF to notify the Silver Creek residents of the potential danger of the Silver Creek Fire were appropriate. In fighting interface fires (wildfires in close proximity to communities), the MOF is faced with a duty to keep the public reasonably informed while trying to be sure not to create unnecessary panic. This is a delicate balancing act. The MOF has undertaken to improve the Fire Notice that is distributed to residents threatened by wildfire to provide greater clarity of the steps to follow in preparation for a possible evacuation.

2. Meeting at Silver Creek Community Hall During Evening of August 4, 1998

The Ombudsman is satisfied that the meeting was conducted appropriately and that those in attendance were not left with a false sense of security.

3. Dissemination of Information

The Ombudsman has found that there were some inaccuracies in the information being provided to the general public over the course of this fire. However, the Ombudsman has found no intention to mislead. In a major firefighting effort such as this, the public cannot expect perfection – inaccuracies will occur. The MOF has acknowledged that some inaccuracies occurred and has given its commitment to improve on its information system in future firefighting situations.

4. Evacuation of Silver Creek Residents

The strong winds occurred at 1315 hours on August 5. The evacuation order was issued at 1331 hours. This 15-20 minute time frame was exemplary. The MOF has consulted with the Office of the Fire Commissioner concerning the ten (10) minute evacuation alert. Consideration is being given to providing residents with more time to prepare for evacuation under the evacuation alert.

5. Awareness of Location of Local Contractor at Outset of Fire

The Ombudsman is satisfied that the MOF was unaware of the position of this local contractor at the start of this fire.

6. Operational Decisions/Problems Conveyed to Public

There was a tactical decision by the MOF to fight the fire only with ground crews and helicopters on August 1 and 2. There were delays in the delivery of fuel on July 31 and August 8. When the public is questioning why aircraft are not flying on a particular day, the MOF has a responsibility to keep the public informed. Not all day-to-day operational problems need be conveyed to the public during the fire suppression efforts. The MOF has to balance the public's right to be informed with its obligation not to create unnecessary panic.

7. Adequacy of the MOF Internal Review

The MOF has acknowledged the importance of these internal audits and has given its commitment to conduct thorough internal reviews of major wildfires. Problems such as the mechanical and water problems identified in this report should be detailed in future MOF internal reviews.

8. Central Control of Operations v. Local Decision-making

While the Ombudsman is satisfied of the importance of a central organization for resource allocation, there appears to be a need for discussions to take place with a view to ascertaining whether the system requires improvement. These discussions are occurring. See comments regarding the BC Emergency Response Management System (BCERMS) in the report. With respect to the assessment of local weather readings, see Recommendation 11 below.

9. Hours of Work for Heavy Equipment Operators and Ground Crews

The Ombudsman is satisfied that safety concerns prevented the use of heavy equipment and ground crews at night during the early stages of this fire. The Ombudsman also finds that early start times were ordered by the Overhead Team prior to August 5, but not necessarily implemented effectively.

10. Type of Aircraft Used

The MOF has acknowledged the need for a thorough review concerning the type of aircraft used for initial attack and support action on larger fires.

11. Hours of Operation of Pilots

The supply of experienced pilots is finite and a pilot's duty day is limited. In a world of unlimited supply, the MOF could have increased the amount of flying time.

12. Use of Local Loggers

The Ombudsman is satisfied that safety concerns compel the MOF to utilize fully-trained firefighters as ground crews during wildfire suppression efforts. The Ombudsman believes that those recommendations contained in a coroner's report (November 29, 1991) and referred to in this report bear repeating and need to be implemented. The forest companies, in conjunction with the MOF, must act on these recommendations if they have not already done so.

13. Use of Heavy Equipment

The Ombudsman is of the opinion that the current pre-organization system for the deployment of heavy equipment can be improved. The Ombudsman endorses the recommendation of the **Garnet Fire Review** that the MOF revisit its policies and procedures used to identify and qualify manpower and equipment resources that can be hired locally to fight fires.

14. Deactivation of Logging Roads

While the Ombudsman agrees that it is not feasible, nor desirable, to maintain all old logging roads in the province, the Ombudsman is of the opinion that the MOF should revisit its policy in relation to the deactivation of main logging roads in areas designated as extreme fire hazard to ensure that these roads are readily accessible for any future firefighting efforts.

15. Communication System in Place

The MOF has acknowledged that there were problems with the communication system and has taken measures to improve this communication system in the Salmon River Valley.



16. Air Operations Boss

While the MOF maintains that the position of Air Operations Boss was always filled with qualified personnel over the life of this fire, the Ombudsman finds that a specifically designated Air Operations Boss was not assigned to this fire. The MOF has acknowledged that this is one of the most important positions during major fire suppression activities. Accordingly, it would seem to be essential that a specific Air Operations Boss be assigned to all major fires and that an Air Operations Boss be placed on standby in cases of wildfires that have the potential to become major wildfires.

17. Accuracy of the MOF Documentation

The MOF took significant measures to document the fire suppression efforts on this fire, such as retaining a historian to provide daily chronologies and establishing a specific section at the Emergency Operations Centre (EOC) to collect documentation. However, our review found inconsistencies in the initial fire reports (IFRs), unit crew daily activity reports, BCFS Resource Tracking System and notes from MOF personnel involved in fighting this fire. The MOF realizes the necessity for greater accuracy of documentation and is committed to addressing this in future training sessions.

18. Organizational Problems

The organizational problems referred to must be put in context. 1998 was a severe fire season. Fire suppression resources were taxed to the maximum. Nevertheless, the MOF can learn from the organizational constraints associated with the Silver Creek Fire for future fire suppression efforts.

19. Width of Fire Guards

The Ombudsman does not have the expertise to make a determination as to whether the “blade and one half” fire guards used on this fire were appropriate. After considering the pertinent material, the MOF should develop guidelines on determining fire guard width.

VII. RECOMMENDATIONS

The Ombudsman recommends that:

1. The MOF continue in its efforts to ensure that the public is provided with accurate and timely information when major wildfires are being fought, especially interface fires (wildfires in close proximity to communities).
2. The MOF incorporate the concept of a community spokesperson/liaison as part of its standard operating procedure when fighting interface fires.
3. The MOF continue to assist the Office of the Fire Commissioner in its consideration of a revision of the ten (10) minute Evacuation Alert to provide residents with more time to leave an area.
4. The MOF revise its Fire Notice to provide greater clarity concerning the steps that residents should follow to protect themselves, their property and their belongings when wildfires are threatening their community.
5. The MOF continue in its efforts to educate the general public to assist the public in gaining a rudimentary understanding of why a particular strategy is being utilized during fire suppression efforts.
6. The MOF keep the general public reasonably informed of decisions made regarding tactics or problems that arise when the public is voicing concerns. For example, the Ombudsman believes that the public should have been provided with an explanation for the reduced air activity on July 31, August 1 and August 2.
7. The MOF continue to improve on its commitment to conduct thorough and timely internal reviews of all major fires and identify all problems that occur during fire suppression efforts.
8. The MOF endeavour to provide more information to the public regarding its fire classification system in an attempt to avoid confusion.
9. The MOF have the entire Overhead Team, including the Fire Boss, work on a single large fire, whenever feasible and practical.
10. The MOF revisit its operations to ensure that its system is functioning properly and to ensure that it will conform with the proposed BC Emergency Response System (BCERMS) based on the Incident Command System (ICS). The MOF ensure that MOF personnel have proper training concerning BCERMS and ICS.
11. The MOF undertake an in-depth study to determine what, if anything, can be done to assist the MOF in achieving more accurate local weather readings when fighting wildfires. Specifically, the study should analyze and identify when the "quick deploy weather stations" are needed and when on-site weather forecasters are required. Consideration should also be given to upgrading the remaining permanent weather stations throughout the province that are still using the old technology. Finally, the MOF's upper air weather systems (weather balloons with radio sound) should be fully tested each

- spring to ensure that they are functioning properly and that when delivered, these systems are accompanied by experienced operators.
12. The MOF be satisfied that proper procedures are in place at the fire camps to ensure that ground crews start at the times designated by the Overhead Team.
 13. The MOF undertake a thorough review of the air support available to ensure that the most appropriate types of aircraft are used in relation to the myriad of topographical situations that firefighters can encounter when fighting wildfires in this province.
 14. Those recommendations of the coroner's report (November 29, 1991) referred to in this report be endorsed and acted on by the forest companies and the MOF.
 15. The MOF, in conjunction with the forest companies, ensure that heavy equipment operators, like pilots and ground crews, have the proper training in fighting wildfires and meet prescribed standards.
 16. The MOF revisit its policy of deactivating main logging roads in designated extreme fire hazard areas.
 17. The MOF take the necessary steps to ensure that the communication system in the Salmon River Valley, in particular, the purple repeater system, is functioning properly.
 18. The MOF ensure that requests for Air Operations Bosses are filled immediately and that the Air Operations Boss be placed on standby in cases of wildfires that have the potential to become major wildfires.
 19. The MOF address the need for greater accuracy in its documentation preparation through future training sessions of MOF staff.
 20. The MOF consider developing guidelines for determining fire guard width.

APPENDIX A

Rank Sheet

FIRE INTENSITY RANK

FUEL TYPE C-3
MATURE LODGEPOLE PINE



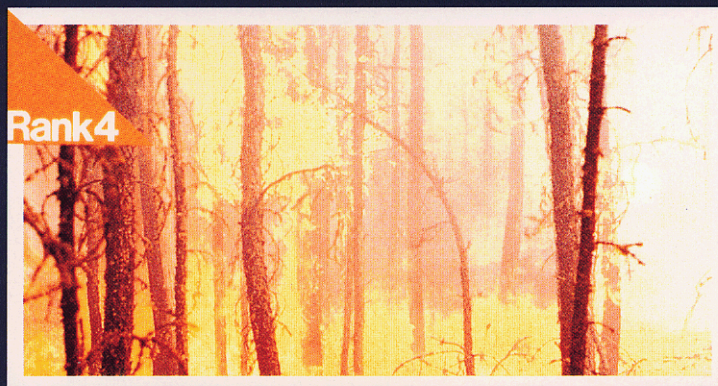
RANK ONE
SMOULDERING GROUND OR CREEPING SURFACE FIRE



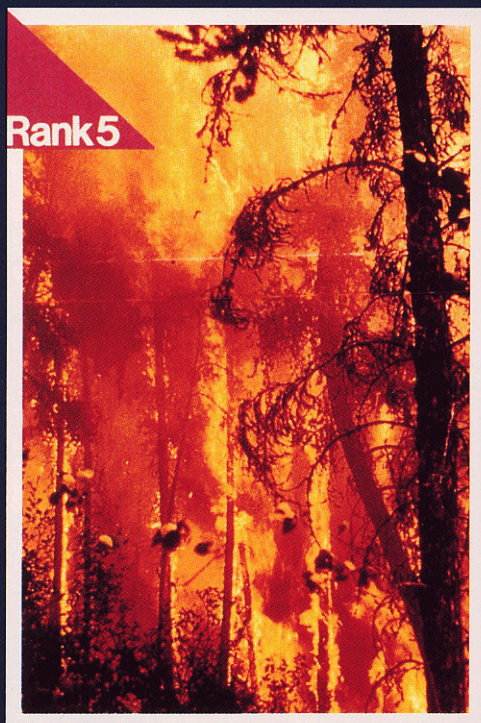
RANK TWO
LOW VIGOUR SURFACE FIRE



RANK THREE
MODERATELY VIGOROUS SURFACE FIRE



RANK FOUR
HIGHLY VIGOROUS SURFACE FIRE, TORCHING (OR PASSIVE CROWN FIRE)



RANK FIVE
EXTREMELY VIGOROUS SURFACE FIRE OR ACTIVE CROWN FIRE



RANK SIX
BLOW-UP OR CONFLAGRATION, EXTREME FIRE BEHAVIOUR

APPENDIX B

Map of Silver Creek Fire

Silver Creek Fire, 1998



APPENDIX C

Evacuation Alert Bulletin



EVACUATION ALERT BULLETIN

EVACUATION ALERT

This **EVACUATION ALERT** is an advisory of fire potential in your area. The reason evacuation alerts are issued is to advise residents of the potential for loss of life or property from unstable fire conditions. When an alert is issued, you should be prepared for worsening conditions which may require you to leave your home within ten (10) minutes notification of an evacuation order being issued.

WHAT YOU SHOULD DO WHEN AN ALERT IS IN EFFECT:

Upon notification of an **ALERT**, you should prepare for the potential evacuation order by:

1. Gathering essential items such as medications, eyeglasses, valuable papers, immediate care needs for dependants and, if you choose, valuable keepsakes (photographs, etc.). Make them available for immediate access for a quick departure.
2. Keeping track of the location of all family members and determine a planned meeting place should an evacuation be called while separated.
3. Relocating large pets and livestock to a safe area immediately, if possible.
4. Arranging accommodation for your family, if possible, in the event of an evacuation. Emergency shelter will be provided if necessary. These emergency shelters will probably not permit pets, so it is suggested that alternate arrangements be made for pets at the same time.

APPENDIX D

Fire Notice

Fire Notice

Your Residence, Farm or Business is Currently Threatened by Wildfire

THIS IS FOR INFORMATION ONLY — A wildland fire currently burning in your area presents a risk to your life and property. Although every effort is being made to control the threat, wildfires are unpredictable and dangerous.

Here are some steps you can take NOW to protect yourself, your property and belongings:

Reduce Fire Hazards on Your Property

- Remove combustible vegetation, such as shrubs and weeds, within 5 metres of structure.
- Move stacked firewood and lumber at least 15 m from structure.
- Remove standing trees within 10 metres of structure.
- Remove exposed propane tanks (e.g., BBQ) and fuel containers.

Prepare to Evacuate

- Know the three stages of evacuation (see reverse).
- Locate all family members or co-workers and determine a planned meeting place should an evacuation be called while separated.
- Prepare to move any disabled persons, children, pets, and livestock to safe areas.
Arrange to transport your household members or co-workers in the event of an Evacuation Order. If you need transportation, call _____ (local emergency program) NOW.
- Arrange accommodation for your family in the event of evacuation. Emergency lodging will be provided, if necessary. Monitor news sources for information.
- Gather essential items, such as medications, eyeglasses, valuable papers, and keepsakes, such as photographs and heirlooms. Make them accessible for immediate departure.
- Tune your radio to station _____ (AM or FM station number) for evacuation messages.

Insurance

- Find your home, farm, business, or renter's insurance agreement; ensure it covers wildfires and is current.
 - Take note of how to make a claim, such as the phone number of your insurance agent.
 - If you lack adequate coverage, contact an insurance agent or broker NOW. This is important whether you own or rent the structure.
-

Evacuation Stages

In case you need to know, B.C.'s Inter-Agency Emergency Preparedness Council has defined the following three stages of evacuation.

Evacuation Alert — You should prepare to evacuate your home or business (see reverse). You are not required to evacuate, but monitor news sources, such as radio, and keep your telephone free for incoming calls. Move children, disabled persons, pets, and livestock out of the danger area.

NOTE: In some instances, an Evacuation Order is immediate and no Evacuation Alert is given.

Evacuation Order — You *must* leave the area immediately. During an evacuation order, the area will have controlled access. An "access pass" may be required to regain access to the area. The Police will enforce the evacuation order.

All Clear — You will be allowed to return to the area when the danger has passed. There is a possibility, however, that the fire danger may re-appear. Continue to monitor news sources.

FOR INFORMATION ONLY — THIS NOTICE IS NOT AN EVACUATION ALERT. Your local authority has prepared emergency plans with your welfare in mind. For further information, telephone _____
(local phone number).

APPENDIX E

Evacuation Order



EVACUATION ORDER

An **EVACUATION ORDER** may be issued by authorities having jurisdiction in response to imminent danger of forest fire risk to the involved area. These orders are issued in the interest of **LIFE SAFETY**. Members of the RCMP, Ministry of Forests and other local agencies, will be involved in expediting this action through door-to-door contact and/or the electronic media. The order may only be rescinded by the authority that issued it.

WHAT YOU SHOULD DO WHEN AN EVACUATION IS IN EFFECT:

1. It is imperative that you report to the **EVACUATION CENTRE** indicated. This will allow for *effective* communications for the evacuation team and will facilitate contact by friends or relatives who may be very concerned.
2. If you need transportation to evacuate, advise the individual providing the notice of evacuation.