



**Protection Branch
Ministry of Forests**

Fire Review Summary for Okanagan Mountain Fire (K50628)

| | | | |
|--------------------|----------------------------|---------------|-------------------|
| Fire Number | K50628 | Fire Name | Okanagan Mountain |
| Date of detection: | Aug. 16, 2003 | Final size: | 25,912 hectares |
| Total cost: | \$33.8 million (estimated) | Total damage: | TBD |

Background

The Okanagan Mountain Park fire began with a lightning strike around 01:55 on Aug. 16 at a point about 200 metres above the lake level, just north of Wild Horse Canyon in Okanagan Mountain Provincial Park. The fire was located on the east side of Okanagan Lake in an area of the park that is inaccessible by road.

There had been an open burning ban on for the Penticton Fire Zone (K5) as of May 16, and an open burning ban for the entire Kamloops Fire Centre (KFC) as of June 15.

On Aug. 16 the fire weather forecast indicated:

“Winds from the southwest at 20 to 30 km/h, gusting to 35 km/h, could be anticipated for the fire area. Winds would increase in speed with the onset of daytime heating with valley and lake inflows. Outflow winds exacerbated by the upper low-pressure system tracking from Washington into north Idaho by late afternoon.”

Given the antecedent drought, continuous crown fire behavior could be expected anytime that winds exceeded 10 km/h, August 16 between 10:00 PDT until 21:00 hrs. Direct attack strategies are likely to fail given flame lengths in excess of 3.5 m which would occur when winds exceed 5 km/hr in open Ponderosa pine forests.”

DAILY WEATHER READINGS AT THE PENTICTON RS STATION

| Date | Temp | RH | Wind Dir | Wind Sp. | Precip | FFMC | ISI | FWI |
|------------|------|----|----------|----------|--------|------|------|------|
| 2003/08/15 | 26.7 | 23 | 0 | 10 | 0.0 | 96.3 | 17.1 | 54.8 |



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FIRE ZONE SITUATION

The Penticton Fire Zone preparedness plan Aug. 16 was at Level 4. The anticipated preparedness requirement for the next 72 hours was at level 4. The current Preparedness Condition was at Level 3 (indicates heavy fire suppression activity, which may need external support). The Weekly Standby Preparedness sheet indicated the following resources were on standby in the Fire Zone:

- 4 Forest Protection Officers
- 4 IA crews
- 5 Fire Warden Crews
- 2 Tank Trucks
- 2 Low Beds
- JD 550

The Penticton Fire Zone had experienced a total of 95 fires up to Aug. 16. There were three new fires starts Aug. 16, and 47 fires were still burning as of that day. Fire K50195 (Osoyoos) still required fire suppression resources.

FIRE CENTRE SITUATION

The Kamloops Fire Centre (KFC) had a total of 635 fires up to Aug. 16. KFC had 10 new fires start on Aug. 16 and had 407 fires that were still burning as of that day. Fire K20627 (McGillivray) started Aug. 15. Fires K206624 (Venables), K20426 (Vermillion), K40300 (Cedar Hills), K20298 (Strawberry), and K20272 (McLure) were still being actioned and using resources. The current PrepCon was Level 3 with anticipated PrepCon of Level 4. The Weekly Stand-by Preparedness Sheet for Aug. 15 indicated the following resources available:

| | |
|------------------------------|---------------|
| 5 dispatchers | 1 Systems |
| 3 Communications/Information | 2 Air |
| 2 Logistics | 1 Weather |
| 1 Plans | 3 Radio Tech. |
| 3 Support | |

Provincial Situation

The province had a total of 2,082 fires up to Aug. 16. There were 24 new fire starts Aug. 16 and 874 fires that were burning as of that same day. The PrepCon level for the province was Level 4. There were a total of 3,500 people on the fire line with 178 pieces of heavy equipment and 165 helicopters. Expenditures were \$14.6 million.



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Fire Start and Response

The Okanagan Mountain fire ignited Aug. 16 at 01:55. The first report came from the general public at 02:05. The second report, also from the general public, came at 02:06.

When the Penticton Fire Zone Forest Protection Officer first observed the fire at about 03:00, he noted the size to be about 5 hectares. Night conditions, rocky terrain, and poor accessibility rendered fire response too dangerous for fire fighting crews to take immediate action in the early hours of Aug. 16. At 04:38 the Penticton Zone Protection Officer requested early morning action by both aircraft and fire crews. By 06:35 a medium helicopter was bucketing the fire, and by 06:47 the Zone Protection Officer (as Incident Commander) was in a helicopter further assessing conditions.

Resource requests were consistent with response to a fire in an area of open timber with no structures immediately threatened. The fire was 6 km from the nearest structures in Naramata and 10 km from the nearest Kelowna dwelling, on a morning with 5 km/h winds. In addition, there were other fires in the area, most notably the Ratnip Lake Fire (K50630) in heavy timber with blow down, about 3.5 km from the Chute Lake Lodge.

The lightning had struck a ridge just west of Wild Horse Canyon, a steep drainage that contained heavy timber and had the potential of wicking (drawing) the blaze towards Kelowna. By 07:00 fire size had reached about 15 hectares.

The Incident Commander set an early objective of keeping the fire out of Wild Horse Canyon. In addition, objectives included efforts to steer the fire towards the water and away from several heavily timbered draws at the head of the fire (in the north, towards Kelowna).

Ground crews successfully constructed hand guards along the south base and east flank of the fire, while helicopters cooled hot spots at the north head of the blaze. Three CL415 water-scooper aircraft worked the fire from 09:50 to 11:15, including blanketing the north half of the fire with water and foam at the Incident Commander's request. (Note: All aircraft are limited to a 8-hour flight day (and 12-hour duty day) and their time must be managed to ensure proper pilot rest periods and aircraft availability during peak burning periods. There were no life and property issues on the fire at this time.)

By 11:15, the Air Attack Officer (AAO) directing the air tanker action reported the fire at Rank 1, and the ground crews continued to make progress with hand guards. The CL415s returned to Kamloops for fuel and were deployed immediately to other targets.

Around 12:30 the Incident Commander noticed an increase in wind speed.

The wind, heat, and dry conditions eventually overcame the previous effects of the water scoopers. Gusts of wind began to play havoc with the fire. Although hand guards to the east and south were holding, two spots appeared to the north of the main fire within 15 minutes. Two helicopters bucketed these spots immediately but reported that even with a 2 to 3 minute turnaround, they could make no progress due to the dry conditions. They would cool a spot and by the time they returned from the lake with another bucket of water, the fire had regained its intensity.

At 13:02 the Incident Commander called for air support by water scoopers and/or long-term retardant aircraft. All available aircraft were on other fires at the time. The first drop of retardant occurred at 13:55.



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By 14:00 ground crew strength had grown to 21 firefighters. Air resources used at various times of the day included one intermediate bucketing helicopter, one medium bucketing helicopter, three CL415 water scooper aircraft, and long-term retardant aircraft. Heavy equipment could not be used in the early days of the fire because of poor access and rocky terrain.

By 14:40 it was clear that the dangerous potential of the fire had increased dramatically.

Retardant and water drops continued throughout the afternoon for about five hours. The last aerial drop occurred at 19:05 when air operations ceased because of flight crew safety concerns due to low visibility from smoke and falling light levels.

The Incident Commander reports making repeated attempts that day to take flanking action on the northeast edge of the fire with limited success. Throughout the day, fire consistently burned through the aerial drops of long-term retardant.

AUGUST 17, 2003

The potential of this fire was identified very early and additional resources were requested during the first day, including a Type I Fire Management Team (FMT).

An Emergency Operations Centre (EOC) was set up in Kelowna and a Forest Service information officer was assigned. The Parks headquarters' facility in Summerland was established as the Incident Command Post.

The fire continued to grow in very rugged terrain. There was a limited ability to use crews due to the difficult (and dangerous) terrain and fire behaviour. There were also some limitations on the use of air tankers due to adverse smoke and wind conditions. However, helicopters were able to bucket. Crew safety was of prime importance.

Objectives were to use aggressive attacks on the east and northeast sections to prevent fire spread towards residences in the Okanagan Mission/Lakeshore Road area. There was continued use of helicopter bucketing, air tanker actions, and securing fire perimeter by using ground crews as conditions allowed.

By dusk the fire was approximately 4 km from the nearest homes, 6 km from the City of Kelowna boundary. The protection of homes and improvements continued to be the highest priority. There were six residences that had been given evacuation notices and an evacuation alert had been given to 41 additional residences.

A night crew was in place on the northeast corner for structure protection despite the 6 km distance between the fire and the closest home (White House) on Okanagan Lake Road. In addition, there was a lookout monitoring the fire from the west side of the lake. By 02:30 (Aug. 17) the winds had subsided.

Chronology of other significant days:

AUGUST 18, 2003

The FMT took over the fire in the morning. The objective was to continue to work on the east flank and to put in long-term retardant along the north flank. The retardant line built with air



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tankers did not hold, and the fire grew 400 to 500 hectares in size. By that night, the fire was only 0.5 km from the first house and the Fire Commissioner evacuated three small communities. The evacuation of these communities went very well. However by 19:00 the winds came and the fire breached the retardant line. The CL415s worked the fire on the north side. The air tankers focused on structural protection during this time. At grounding time, the drops were not slowing the fire down and were of limited value.

The Kelowna Fire Department had fire fighters and trucks protecting people and structures being threatened. The Fire Department and Fire Management Team were in communications about how to alert people whose homes were being threatened at this time.

Resources continued to arrive throughout the day. Ground access on the fire site was limited, and there were difficulties getting crews and heavy equipment into the fire area due to cliffs on one side and drop offs on the other – a very rocky terrain area.

Key points that arose during the initial phases of this fire:

CHALLENGES:

Resources had to be balanced between fires K50630 (Ratnip) and K50628 (OK Mtn. Park).

Some of the air tankers working on the OK Mtn. fire had to refuel and reload in Castlegar, and Kamloops. This was done to reduce aircraft congestion in Penticton, the closest tanker base and ensure the quickest possible reloads (all air tanker bases within the southern one-third of the province were being fully utilized due to heavy fire activity, and it was very common to refuel at different bases to reduce pit congestion).

Wildland Fire Engine no. 9 only had one fire department crew assigned with no crew replacement.

Difficulties were encountered in communication between the Incident Fire Management Team and the Penticton Fire Zone staff after the FMT took over the fire. Recognizing combined workloads, the zone could have been more included in day-to-day communications.

It was very difficult to find ground access into the fire (especially on the east and north sides) for manpower and equipment due to the roads and terrain.

Winds were creating a challenge for fighting the fire.

Incident Commander and ground crews would have benefited from having revised ETAs for air tanker requests, particularly when tanker activity was very high. However, it is recognized that the priority communication must be with those fires being actively bombed.

POSITIVE ASPECTS:

Local knowledge of those working on the fire was outstanding.

Cooperation of the Gorman Bros. Staff.

Interface information sessions with Rimrock general public were successful.



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Accurate fire weather forecasts.

Great cooperation with the F.D. on the south side of the fire.

21 structures saved in the Lakeshore, Swick Roads and Vertram Creek Park.

AUGUST 19, 2003

The fire took a significant run to the south. It grew from approximately 2,000 to 9,000 hectares, pushed by strong winds from the north. Overnight the fire moved into terrain where heavy equipment could be used and the Fire Zone deployed additional equipment to the fire.

Structure protection was increased in the Chute Lake area and additional evacuation alerts and orders were issued.

Communication towers were also threatened and efforts were taken to save these facilities. However, the fire overran these sites during the day.

The Incident FMT started to discuss unified command options in anticipation that the fire might spread to residential areas within the Kelowna city boundaries. The FMT continued to receive both fire suppression and expanded ICS specialists to support the growing suppression effort.

Limited availability of aerial ignition equipment limited the burn off and back-firing options. However, some hand lighting was carried out on the North Branch successfully.

AUGUST 20, 2003

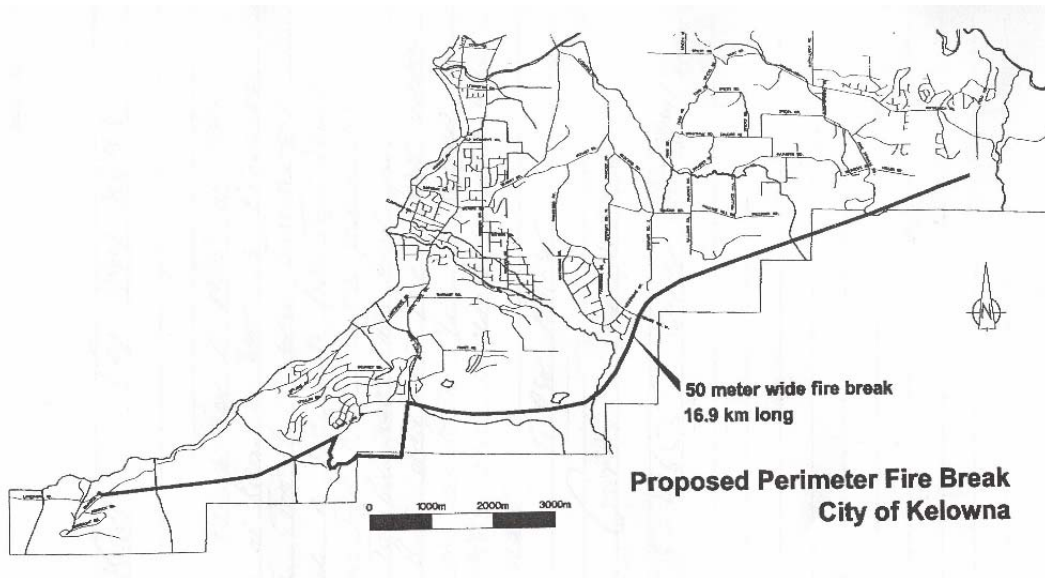
The fire was over 9,000 hectares and the Fire Analysis Strategic Plan was revised. Chute Lake Lodge and the White House were still undamaged.

Significant efforts were taken on the South Branch to prepare to burn off a large portion of the flank.

The City of Kelowna informed the Incident Commander of its intention to build a "Super Guard" along a planned road right-of-way within the city boundary, close to the Lakeshore Road area using equipment not assigned to the fire.



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At 16:00 the burn off on the south was started. This was a significant effort to burn approximately 600 hectares. Heli-torch light up occurred in close proximity to structures, but was successful due to the support of the Fire Department. There was very good communication and cooperation with the structure protection resources.

On the North Flank, approximately 80 hectares were lost along the northeast flank due to fire spread.

As the command structure expanded to meet the needs of growing fire suppression activities, a second Type I Incident FMT arrived to assist the first FMT.

AUGUST 21, 2003

Incident Command structure was modified to take advantage of the second FMT. The plan was for the second FMT to focus on night shift operations and contingency planning. Unified command with the Kelowna Fire Department was also initiated as the fire had approached the boundaries of the city of Kelowna.

Moderate to strong south and southwest winds were forecast and aggressive action was anticipated on the northeast flank. Radio communication coverage limitations in this area of the fire continued to cause frustration.

The fire started to threaten Kelowna. Several evacuation alerts and orders were issued during the day. Efforts focused on structure protection along Lakeshore and in the Rimrock subdivision area.

The fire was spotting up to 100 metres in front of the main fire.



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Kelowna Fire Department and Forest Service crews' efforts saved approximately 17 homes. Despite Forest Service crews remaining overnight on the fire until 04:00 on Aug. 22, approximately 21 structures were lost. A contingency plan was initiated, specifically looking at the Myra Canyon area.

AUGUST 22, 2003

Despite the loss of structures overnight, the Incident FMT was focused on developing tactics based on a forecasted cold front during the day that had strong winds associated with it.

EOC was informed and Kelowna Fire Department began increasing their resource deployments. A new organization structure for municipal firefighting resources was implemented at this time to try to deal with the escalating situation.

At 14:00 and 16:00, crews began to be pulled off the northeast flank. Some of the ground crews recognized the seriousness of the situation and took proactive and appropriate measures to retreat without waiting for formal direction. At 16:45 the fire blew up, being pushed by 75 km/h winds and gusting downdrafts. The fire was moving along three fronts, generally expanding to the northeast with Rank 5/6 fire behaviour.

The fire intensity was carrying burning debris (the size of dinner plates) 6 to 8 km from the main fire. Fire-induced rainfall occurred in an isolated area on the northeast front.

All efforts turned to structure protection on the north side and wildland fire crews worked alongside structural crews to save as many structures as possible. Incident Command was authorized to undertake "structural triage" if necessary in order to limit overall losses.

The winds did not subside until 03:00 on Aug. 23. Over 250 homes were lost. However, without the significant efforts of all the suppression resources, it is estimated that this number would have been much higher.

AUGUST 23, 2003

The Operations Chief held a morning meeting with fire line personnel to regroup from the fire activities of the previous day and to add a new Northeast Branch structure to deal with the larger fire-ground area.

AUGUST 24, 2003

Evacuated residents were told which houses were burned.

AUGUST 25 TO 27, 2003

Fire suppression activities continued.

AUGUST 28, 2003

The second Type 1 FMT took over to provide the first FMT a chance to rest.



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Contingency planning and discussions regarding the Kettle Valley Railway (KVR) trestles began.

AUGUST 29, 2003

A private aircraft crashed approximately 10 km southeast of K50628 and started a new fire in the Greyback Creek. Resources from K50628 were redirected to initial-attack this fire, including all heavy helicopters from the Northeast Branch.

The Greyback Fire was successfully contained after aggressive initial attack through the afternoon. However K50628 did move into an area of very rugged terrain adjacent to Myra Canyon.

AUGUST 30, 2003

The evacuation order was lifted for the Naramata areas.

There was a motor vehicle accident involving a Langford fire truck on the South Branch of this fire. Structural firefighters were injured.

Rugged terrain in the Myra Canyon was limiting the suppression efforts in that drainage.

AUGUST 31, 2003

The Structural Branch (resources available to municipal or local fire departments) began plans to de-mobilize, however calls were made to the Office of the Fire Commissioner and Kamloops Fire Centre to delay the demobilization.

SEPTEMBER 1, 2003

The first Incident FMT resumed command over the fire as planned.

Operations Chief was having difficulty moving burned wood, that was hampering access on fireguards and access trails in some parts of the fire, to allow mop-up and suppression action to continue.

SEPTEMBER 2, 2003

Incident Commander spoke to the media about the limited probability of success in any actions to save the trestles because of: the materials trestles were made of (large timbers); the heavy debris at the base of the trestles; the extreme burning conditions; and the steep and unsafe terrain that compromised fire fighter safety where the trestles were located.



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SEPTEMBER 3, 2003

Despite attempts to fire proof the trestles, two were lost. More would very likely be lost over the next 24 hours.

SEPTEMBER 4, 2003

More evacuation orders and alerts were issued as the fire started to move north towards Kelowna.

Suppression action included a burn off from the KVR.

SEPTEMBER 5, 2003

Six additional trestles were lost

SEPTEMBER 6, 2003

Efforts continued to focus on Myra Canyon and saving trestles.

A Fire Weather Warning was issued for the fire. Strong overnight winds 20 to 30 km/h, and gusting of 40 to 50 km/h from the south, were forecasted. The fire made a significant run to the northwest towards the June Springs and Gallagher's Canyon areas, moving at 14 metres/minute.

SEPTEMBER 8, 2003

The first significant precipitation occurred on the fire, and the first since June 22nd. Prior to this, the Build-up Index (BUI) had reached 425, which is almost five times the Canadian extreme for this index.

Rehabilitation:

A third Type I Incident FMT took over the fire Sept. 17. Their primary task was to develop a rehabilitation plan and begin its implementation.

At this point there were 440 personnel on the fire. However 200 were due to leave within 24 hours. Generally, the following aspects characterized the rehabilitation of this fire:

Magnitude of area and scope of rehabilitation activities necessary was extensive. (16-18 agencies involved as land or resource managers.)

Lack of resources available to replace and support this effort due to the extended length of fire seasons and the cumulative fatigue impacts on the typical resource pool.

There was a significant workload related to finance and administration functions due to the paper work "catching up" with the resources utilized during the suppression action.



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A Type II FMT was deployed and worked for the Type I FMT in a mentorship role, and then assumed command of when the Type I FMT departed.

Other Agencies

Okanagan Mountain Park fire required extensive use of outside agency resources and the forest industry for fire suppression, support, coordination and general assistance activities.

| Federal Government | Provincial Government | Regional Government | Local Government | Forest Industry |
|---------------------------|--|----------------------------|-------------------------|---------------------------|
| Military | B.C. Forest Service Region/District Staff | Central Okanagan | City of Kelowna | Gorman Brothers |
| R.C.M.P | B.C. Parks | Okanagan Similkameen | City of Penticton | Riverside Forest Products |
| | PEP | | Village of Westbank | Weyerhaeuser |
| | OFC | | | |
| | Public Affairs Bureau (PAB) | | | |
| | Ministry of Sustainable Resource Management (MSRM) | | | |