



Protection Branch

Ministry of Forests

Burton Fire Review N50451

Fire Number	N5-0451	Fire Name:	Burton
Fire cause:	Lightning	Date of detection:	Aug 6, 2003
Final size:	530 ha	Total cost:	TBC
Total damage:	TBD		

Background

Geographic location: North Side of Snow creek, approximately 5.5 km southeast of the community of Burton.

Fire weather indices:

	FFMC	DMC	DC
Kettle 2	70	119	458
Octopus Creek	91.5	144	437

Kettle 2 weather station which is some distance from the fire picked up 2.3 mm of precipitation, however it is suspected the lightning strike that caused this fire was not accompanied with showers. Kettle 2 was the closest weather station geographically to the fire, but Octopus provided more representative readings.

Fire Weather Forecast:

SYNOPSIS: Little change in the pattern with a deep trough just off our coast plus a strong ridge to the east is causing a squeeze over the interior. This is a southerly flow with pockets of very unstable air. Thunderstorm activity, which was earlier concentrated in the south this morning, now covers all areas. The overall flow pattern should remain relatively unchanged tomorrow. Microburst reported over western Washington late yesterday confirms the potential for strong gusts.

OUTLOOK: We should remain in a southwesterly flow of unstable at times moist air so showers threatening daily. Lots of sunshine likely for both Friday and Saturday.

ARROW / KOOTENAY LAKE - ZONES 26 AND 24

TONIGHT: Cloudy periods and scattered thunderstorms with wind gusts up to 50 km/h through mid evening, then clearing.

TOMORROW: Sunny with cloudy periods, 40% chance of a thunderstorm.

MAX TEMP: 26 to 33 MIN RH: 25 to 40%

WINDS: Becoming S or SW 10 to 20 during the afternoon, possible gusts to 40 near convective cells.

CHANCE OF LIGHTNING / DRY LTNG: Tonight: 60/40 Tmrw: 40/30



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Abnormal Conditions: Prior to ignition it was one of the hottest and driest Julys on record.

Prevention activities in place:

Open burning, and campfire restrictions orders in place. Industrial operations were shut down. Strong media campaign maintained to alert public of the fire danger.

Fire Zone Situation

Forecast versus actual weather:

On ignition there was a subtropical moisture system that produced scattered thunderstorms with spotty showers. There was little or no rain in the Nakusp/Burton area.

Throughout the duration of the fire from August 6 through to the first week of September 2003, it was hot and dry except for the occasional disturbances, which produced generally dry thunderstorms and gusty winds. Thunderstorm advisories were issued August 7, 19, 23, 26, 27 and September 6.

Local weather stations recorded minor rainfall on August 11, 16 and 23. A cold front moved across the area with more significant rain during the night of September 8, 2003, signaling the end of any significant fire activity.

Preparedness Level:

The Arrow Fire Zone preparedness was at level five (V).

Resources available at Nakusp:

2 Rap Crews

2 IA Crews

Other fire activity:

On August 6, the day before the lightning storm there was not a lot of fire activity throughout the Fire Zone in addition to the Trout Lake fires. A forest officer was called on August 6 to manage the Fire Zone, and pull resources into Nakusp in anticipation of forecasted lightning and an increase in new fire starts. There were 36 fires burning and 11 new fires reported on the evening of August 6 and the morning of August 7 as a result of the lightning storm.

Fire Centre Situation

Forecast Versus Actual Weather:

All indications are that the forecasted fire weather was accurate and the area did receive dry lightning. There were no records produced on actual onsite wind gusts or temperatures.

Preparedness Level:

The Southeast fire Centre preparedness was at level five (V).

Fire start and response

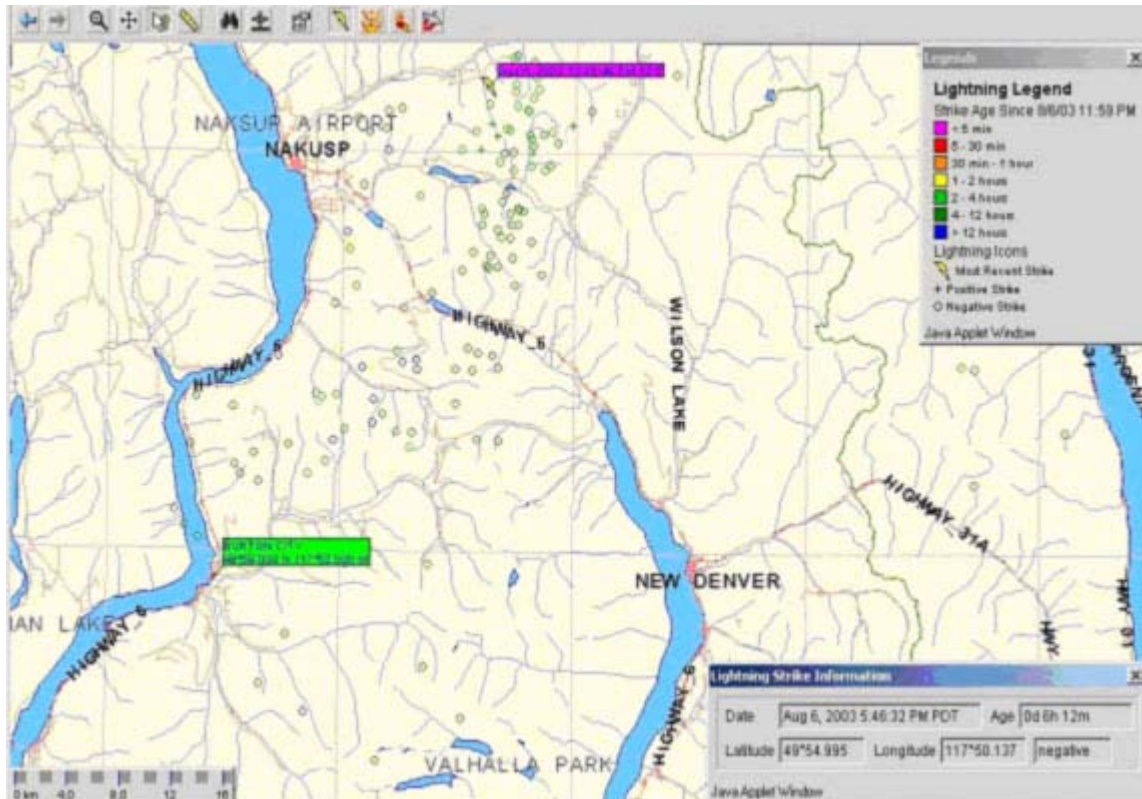


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Ignition date and time:

Fire started on the evening of August 6, 2003 and recorded at 17:46 hours from a lightning strike.



Map of plotted lightning strikes for the evening of August 6 in the Burton / Nakusp area.

Detection date and time:

Fire was first report by a member of the general public to the Nakusp Field Office on August 6, 2003 at time of a lightning strike. A Ministry of Forests Field Officer recorded it to be at 17:45. The first initial phone report for the lightning activity in immediate area was received by the Provincial Forest Fire Reporting Centre (PFFRC) at 17:57. This information was electronically passed to the Southeast Fire Centre at 18:00 hours and was acknowledged at 18:01 hours of August 6, 2003.

A Forest officer was dispatched to the area based on the Initial Phone Report (IPR) and confirmed there was a fire. No action was taken due to inaccessibility. The local decision was to not request air tankers because the grounding time was at 20:30 hours.



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On the morning of August 7 at 08:22 hours, a BC Timber Sales Forest Officer conducted a helicopter reconnaissance of the fires. He completed Initial Fire Reports (IFRs) on 4 new fires in the Snow Creek drainage. Fires 412 and 451 were on the north side of the creek and fires 452 and 453 were on the south side of the creek. The IFR for fire 451 indicated that the fire was a moderate priority because of its southern exposure, the fact that it was in deciduous trees, and the open canopy. It was also noted that there was not a whole lot of timber value in the area. Fire 412 was ranked higher due to timber value. The priority ranking of these fires were determined to be the same by the Air Attack Officer in Bird Dog aircraft 53.

Initial attack resources dispatched

The helicopter recce on the morning of August 7 determined that the fire was inaccessible for regular initial attack fire crews and would have to be a Rapattack target. Rapattack crews were requested. However, there were no Rapattack initial attack fire crews immediately available. The only available Rapattack crew at Nakusp had been dispatched to the higher priority fire (N50412).

On August 7 at 11:22, the AAO in BD 53 commenced air tanker action on all 4 fires in the Snow Creek drainage. Air tanker action continued for the duration of the day.

On August 8 at 10:42, Rapattack initial attack fire crew Rap Alpha was deployed to fire 451 with the objective to build a helipad to create an access location so additional fire crews could be deployed to the fire.

Notes: At the time of ignition, crews were working on other significant fires. Around Nakusp there were 3 fires near the watershed, and another few fires near Box Mountain. There were 4 crews on standby. Targets for the zone didn't start until the evening of August 6. By the morning of August 7, the zone had 36 fires with 11 of those being new. A lot of those fires couldn't be actioned right away, due to the lack of crews and the lack of helicopters to move crews.

N50451 Chronology

Ignition: August 6 17:46

Detection: August 6 18:00 IPR

Confirmation: August 7 09:15 IFR

Initial Attack: August 7 11:44 (Tanker Action BD 53)

August 7, 2003

Air Attack Officer (AAO) in Bird Dog aircraft 53 (BD 53) was dispatched to the Snow Creek drainage to direct air tanker action on 4 targets. The AAO was to work all four targets at the same time – priorities upon arrival where fire 412 #1 priority, fire 451 #2 priority, and fires 452 and 453 ranked third. Fire 412 had lots of potential to flare up but was easily workable. Fire 451 had lots of potential to cause problems as well but was very hard to work. Fires 452 and 453 did not exhibit a whole lot of active fire behaviour, but there were high timber values. Fire 451



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(on first arrival) was 0.5 of a hectare, with a fire intensity rank 2 and occasional rank 3. The AAO decided to action the higher priority fire 412 first. By the time the AAO was ready to commence air tanker action on fire 451, it was approximately 1 ha and rank 3. Fire 451 was 4 times as wide as it was long. To safely take air tanker action on fire 451, the AAO could only have the fixed wing retardant air tankers fly over the drop zone in one direction, north to south because of terrain. The AAO's one option and objective was to completely blanket the fire with retardant.

Challenges –the one flight (run) direction and steep terrain were very limiting. The AAO estimated that it took on average 3 attempts from each air tanker load to adequately cover the target area with retardant.

Air tanker retardant drops on fire 451 commenced at 11:44 and continued throughout the day. Twice the AAO had to redirect the air tanker action back to fire 412 when its fire behaviour increased in intensity. As well, due to heavy smoke there were two times when the AAO had to abandon action on fire 451 throughout the day.

Air tanker action success was low on fire 451, but was higher on the other 3 fires. The last retardant drop on fire 451 for August 7 was at 19:12 hours.

The AAO determined another air tanker group would not have helped. Concurrent aerial drops from rotary wing aircraft could have helped if there was adequate air space between the fixed wing air tanker drops to safely maneuver multiple aircraft within the Snow Creek drainage.

Original request for a Rapattack initial attack fire crew response for fire 451 was made August 7, but all Rap fire crews were busy working other fires.

Initial attack fire crew Rap Lima did action the higher priority fire 412 on August 7, and was deployed at 14:12 hours. Rap Alpha was dispatched to take action on fire 451 on August 8 after completing action on a fire in Princeton on August 7. Rap Alpha headed to Nakusp with Rap Bravo.

August 8, 2003

Rap Alpha on site @ ~ 10:00

Helipad construction initiated

Medium helicopter HOS bucketing on fire

Rap Alpha requests air tankers @ 15:49

Rap Alpha tactically withdraws @ 16:55

Additional air tankers take support action @ 17:18

Detailed Chronology

08:28 Rap Alpha and Rap Bravo left Salmon Arm Rapattack Base in rappel equipped helicopter TVL.



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- 09:35 Rap Alpha and Rap Bravo land in Nakusp in TVL
- 09:55 TVL left Nakusp (after refueling) with Rap Alpha for fire N50451 and with Rap Bravo for another fire. Both Rap crews are to rappel to separate fires to build helipads. Rap Alpha reports the fire to be 0.5 ha.
- 14:30 Pad construction was continuing.
- 15:50 Crew leader reports an increase in fire behaviour activity. The fire is now intensity Rank 3 with candling. The rap crew leader requested air tankers, or heavy/medium rotary wing aircraft with buckets air support –need at this time to hold the fire during pad construction.
- 16:00 By 16:00, crew leader reports fire moving up hill towards helipad site. Medium helicopter HOS is unavailable for bucketing.
- 16:15 Fire is now moving parallel to the pad.
- 16:55 The wind shifts and the Rap crew reports heavy smoke at fire site. The Rap crew stops work and moves to a safe zone.
- 17:10 Another AAO in Bird Dog aircraft 11 (BD 11) arrives over the fire and commences air tanker action
- 17:18 until 19:00. BD 11 confirms that ground escape routes for the Rap crew still appear to be navigable and not compromised from fire spread.
- 17:40 Rap Alpha moves downhill on escape route,
- 17:50 Crew reaches logging road
- 18:36 Crew reach Highway 6. Helicopter THK in the area at the end of the day and picks up Rap Bravo from completed helipad on fire N50452. Both Rap crews Alpha and Bravo head to Nakusp for the night.

By the end of August 8, fire 451 became a high priority. Helipad construction was not completed as fire spread towards location and Rap Alpha had to leave their fire gear behind and use an escape route to safety.

August 9, 2003

- 08:21 Medium helicopters HOS & HOG commence bucketing
- 09:36 Rap Alpha redeployed to construct helipad at new location
- 10:36 Rap Alpha tactically withdraws
- 10:55 Air tankers recalled and BD 54 over fire
- 10:56 Rap Alpha arrive at staging area

Burton N50451 Summer, 2003



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15:10 Air Tankers continues to work fire, BD 51 estimates fire size of 25 ha

Fire conditions in the morning of August 9 were very aggressive. The fire was burning aggressively all night and at 07:00 hrs there was open flames. The objective was to limit fire spread and hold on to what they had. August 9 was the first day of on-ground fire suppression activity. A Forest officer became the Incident Commander.

Spotter aircraft determines that the fire situation was safe enough for Rap Alpha to secure fire gear to be lifted out. The decision was made to extract the fire crew because the fire intensity increased. An emergency crew extraction at took place at 11:15. At 12:09 the fire took a run.

Above the steep ground where the fire was burning, the land benched out to an area that would be accessible to ground resources. At 13:55, heavy equipment was requested including feller-buncher, crawler tracker, skidders and line locators.

At 14:57, fire intensity increased to Rank 5 and took a larger run and grew to approximately 25 ha. The fire burned up and over the ridge. At the start of the burning period, the fire was in an area under forest tenure to Pope and Talbot and by the end of the day it had spread onto an area under forest tenure to BC Timber Sales.

The biggest challenges fighting this fire from August 9 to 13 was lack of availability of additional medium helicopters to perform aerial water drops. The fire was not accessible for regular ground fire fighting resources until after the fire took its run on August 9 and spread uphill to an area closer to a road system.

August 10, 2003

First day of expanded attack as fire is now accessible for ground resources.

A preliminary Fire Analysis Strategy plan developed @ 07:30 and includes fire N50412.

Heavy equipment, line locators and 15 Pope & Talbot staff onsite.

No Air tanker action this date.

Medium helicopters HOS & HOG worked on fire throughout day

Meeting with local emergency personnel @ 19:00

Started construction of fireguard using heavy equipment, 4 backhoes and 2 skidders. Nine members of the Burns Lake unit crews started to set up water delivery systems. The biggest challenge was the SW corner of the fire. The IC did not want to run the risk of operators or equipment getting burnt over from rapid fire spread.

A forest officer met with local RCMP, local Fire Chief/PEP Coordinator to explain the challenges faced by the Forest Service and the potential fire risks if the fire was to spread down to the community of Burton. The forest officer said there might be a need for an evacuation and advised issuing an evacuation alert.



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On the evening of August 9, the fire rapidly spread and took its largest run. Fire size became approximately 300 hectares.

August 10 and 11, 2003

A revised Fire Analysis Strategy (FAS) plan was required. IC, a forest officer and a BCFS land manager (who collected the information) took a helicopter flight to update the FAS early on August 10. They showed the Pope and Talbot line locator where the machine constructed fireguards needed to be established. Fire size at 317.5 ha.

A mapping consultant was used to prepare maps. The maps would also be used for another town hall meeting planned for the evening of August 10.

There was no direct attack on the Snow Creek side of the fire and the fire had a slow creeping downhill spread. When building the machine fireguards, the heavy equipment operators went as far as they could.

The local PEP Coordinator issued an evacuation alert. A community meeting hosted by PEP and BCFS was held and approximately 100 people attended. Forest Service staff talked to the community group about the fire strategy, on-site fire fighting resources, actions being planned, the history of the fire and why the fire grew to the size that it had. The people in attendance were appreciative for the time taken for the explanation; but were concerned about their ability to evacuate if required. The Forest Service staff had aerial photo maps so people could see what was happening behind the community. Forest Service staff felt people understood what was happening on the fire site and that the meeting went well.

On August 10, a Safety Officer conducted a review and did a safety plan for the fire. He provided fire-fighting training to any forest industry staff that required it.

Ground fire suppression resources made good progress on August 10 and 11, did not lose any ground and continued to flank the fire.

A burn-off was considered pending the right weather conditions. There were high risks with conducting a burn-off on the southwest corner of the fire. In some places it was not possible for ground crews to build hand guards because of the terrain.

August 12, 2003

There were no significant changes or events. The objective was to establish machine, hand and retardant guards around the fire. Where it was not possible to construct a hand or machine guard, alternative tactics were considered including sprinkler systems and blasting guard. The Burns Lake Unit crew completed a hand guard on the north face. There was a lot of unburned fuel within the fireguard. The wind shifted and came from the SW 15 km/h and inversions started to create a problem.

A revised FAS was started and was signed off by the land managers on August 13 at 1100. It was confirmed that the fire was also within Slocan Forest Products tenure area. Although the



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community of Burton is on a well system, forest officials determined that fire operations needed to protect water courses as the fire was within a domestic watershed for several residences on lower slopes.

The southwest corner of the fire continued to be a challenge due to the terrain.

The plan was for a Type II Incident Fire Management Team to take over command of the fire on August 13.

August 13, 2003

The Type II Incident Command Team (with IC and his team Operations Chief; Plans Chief; and Logistics Chief) took over the fire. The IC recognized the fire was still aggressively burning - the biggest challenge was the fire location with the terrain, steep slopes, and ground access and water delivery; the significant timber values and community of Burton.

The majority of the required fire fighting resources were already ordered and were working on the fire or where in transit.

August 14, 2003 and Forward

Fire suppression activity continues. The significant events that occurred during this period were:

August 16 - fire spreads in size by 100 hectares - last significant fire spread

August 17 - construction of contingency fireguards commences

August 23 - fire guard construction complete around the difficult SW corner

September 6 - fire now in mop up stage

September 8 – rain and cooler temperatures

Fire rehabilitation is initiated and completed.

BCFS Nakusp Facility – Ministry fire zone operations centre

The purpose of a Ministry fire zone operations centre is to provide site support to the fire incident(s) as required. There were multiple fires burning within the Arrow Fire Zone that were being supported from the BCFS Nakusp facility. There weren't enough qualified personnel in Nakusp to deal with the large volume of support for the multiple fires. For example, there were numerous helicopters used on the multiple fires supported from Nakusp but there was a delay in getting a person knowledgeable with wildland fire operations to oversee coordination of the rotary wing aircraft to ensure these critical resources were delivering the best results on the various fires, based on wildfire behaviour, forest fuel types, values at risk; bucketing turn-around times, etc.



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During a fire season with normal levels of fire activity, the BCFS Nakusp field office is adequate, but during the 2003 fire season, the phone lines in the facility were not satisfactory and the Internet connection is too slow. The local fire zone operations centre had to be relocated and was moved to the local Forest District office. An extra trailer was brought in for fire admin and dispatch. It was not an ideal, but worked better than the Nakusp facility. There is a need to locally pre-organize another facility like a school when it is anticipated that the Nakusp facility may not be adequate.

The volume of radio traffic was very high, but radio communication between the fire site and the Nakusp facility were fine. Due to the terrain, there were some radio communication dead zones on the fire.

Challenges

Resources

There was a shortage of certain critical resources because of the multiple fires burning throughout the southern part of the province. There were not enough Type 1 fire crews available to work the difficult fire ground. Need to increase the number of Type 1 fire crews.

There was a shortage of medium and heavy helicopters. On this fire, medium helicopters used for bucketing were satisfactory but a heavy helicopter(s) would have been desirable.

Initial action

There was a delay in getting ground fire fighting forces established on the steep slope where the lightning strike started the fire. Due to the heavy demand for Rappattack crews on higher priority fires, there was a delay in getting crews rappelled onto the fire site to build helipads, which would be used to fly in additional fire crews. The first two helipads were both burnt over from fire spread. Although it may have been feasible to hike a fire crew to the location where the fire started, it would not be a prudent risk management decision to have personnel hike downhill in difficult terrain to a burning fire with no safe method to immediately extract them.

Training/Safety

Danger tree assessment was an issue. There were not an adequate number of danger tree assessors on this fire. We need to work with WCB to ensure the assessment procedure will adequately address worker safety concerns without causing delays in responding to fire spread.

There was a lack of qualified Rotary Wind Bird Dog Officers to oversee helicopter bucketing operations. Some pilots did not know how to appropriately deliver aerial drops to maximize effectiveness.