

RWI HINDCAST 001 — CFB Wainwright fire

Formerly RWI SITREP 005. Renamed 27 Oct 2026: reports that reconstruct past events are Hindcasts; SITREPs cover the current situation.

CFB Wainwright fire, Alberta • 14-25 October 2026

Issued 25 Oct 2026, 05:15 MDT; **revision 1, 08:30 MDT** (corrections in §1). Full re-pull of every open satellite source over the base from 14 Oct onward: Sentinel-2 (5 usable passes), Sentinel-1 radar (2), NASA VIIRS active-fire granules (136 overpasses, S-NPP / NOAA-20 / NOAA-21), GOES-18 and GOES-19 fire detection every 10 minutes (1,440 scans, 14-18 Oct), VIIRS night lights, and OpenStreetMap range boundaries. Times are local MDT (UTC-6) with UTC in brackets. Follows SITREPs 001 and 004. Four soldiers died and dozens were injured in this fire; this report covers only what open satellite data and public reporting show, and makes no finding about responsibility.

1. Bottom line

1.1 The fire began inside Permanent Danger Area 2, downrange of Range 11. The eight fire pixels at the first VIIRS detection (14:50 MDT, 17 Oct) lie 2.1–4.4 km east-north-east of the OpenStreetMap “Range 11”, which Prime Rogue identifies as the automatic grenade launcher range; that independently supports Prime Rogue's model placing ignition 1.4–2.2 km east of Range 11. “Range 2 (Grenade)”, 3.5 km east of Range 11, is where C Company is believed to have been, not the origin (corrected — see note). **CORRELATED**

1.2 The fire burned at low intensity from at least midday, then ran as the cold front hit. Landsat at 12:17 MDT already shows a burned strip of about 0.44 km² (Prime Rogue). Four VIIRS passes between 12:51 and 14:31 saw no fire — including a near-overhead NOAA-21 pass at 13:54 (387 m pixels) — and GOES saw nothing under clear skies from 12:00 to 14:40, so the front was below their detection thresholds. NOAA-20 recorded a 3 km line at 14:50 (8 pixels, ~75 MW). The front's gust (82 km/h at the base station, 15:16) turned the fire; GOES-West measured 77 MW at 15:10 and **about 1,200 MW at 15:30**. Prime Rogue's model puts the fire at the Range 2 area around 15:19–15:26, so the 15:30 peak is most likely the run that reached the soldiers (corrected — see note). **CORRELATED**

1.3 This resolves the timing question in SITREP 001. Officials now describe a pre-existing range fire, monitored in the danger area, that high winds pushed onto the pairs range; “just before 4 p.m.” is an approximation, and measured data put contact in the 15:16–15:30 window. What was decided while the fire was visible from orbit is for the investigations. **CORRELATED**

1.4 Burned area about 10.7 km², of which about 0.9 km² is outside the base boundary to the south-east (OSM boundary). Two VIIRS pixels show heat still there on 18 Oct at 14:06–14:31 MDT. Matches reporting that the fire crossed the fire guard and burned beyond the training base. **CORRELATED**

1.5 Not in the news: a separate fire in the same danger area three days earlier. NOAA-21 detected a fire at 14:50 MDT on 14 Oct near “Range 13”, ~2.9 km south-west of Range 2; it left a ~0.9 km² scar. Older scars inside PDA 2 pre-date 4 Oct (earlier range fires or prescribed burns). We found no reporting of the 14 Oct fire. **NOT IN NEWS**

1.6 Gas lines: nothing in our record suggests gas — GOES shows no persistent heat after 15:40 and no hot spot afterwards. This matches Prime Rogue's six-test analysis, which points away from gas starting or feeding the fire but cannot rule out a brief release. **PARTIAL**

Correction note (rev. 1, 25 Oct 08:30 MDT): the first issue placed the origin near “Range 2 (Grenade)” and put contact with the troops at ~15:55, “25–30 minutes” after the GOES peak. Both were wrong: Range 2 is the troops' area and contact was ~15:19–15:26. It also called the fire “small” before 14:30; “low-intensity” is correct. This revision also credits Prime Rogue's 21–24 Oct Wainwright series, which preceded this report and which we failed to check first. Shared numbers (GOES values, ~10.8 km² burned) were reproduced independently.

2. What has been reported (to 24 Oct)

2.1 Casualties: four soldiers killed — Pte. Shaun Farrell, Pte. Aidan Goulding, Pte. Hayden Lykkemark, Sgt. Morgan Wong; 39 injured. As of the 22 Oct briefing, 27 remained in hospital (13 critical) and 12 had been released. About 84 soldiers of 3 PPCLI were on the exercise. (CP/CP24, CTV, Global News)

2.2 Origin: “the fire initiated on the automatic grenade launcher range ... as a result of routine military training” (Brig.-Gen. Vanessa Hanrahan, Provost Marshal). The area is a permanent danger area that may

contain unexploded munitions, so it was monitored rather than fought. No indication of an explosion causing the fire; gas infrastructure not involved. (Global News 22 Oct; CP24 24 Oct)

2.3 Spread: “uncommonly high winds took a pre-existing range fire towards the pairs range,” reaching it just before 16:00 local. Maj.-Gen. Wade Rutland corrected his earlier statement: the soldiers were setting up a pairs range, not a section attack. The fire crossed the base fire guard and burned beyond the training area. RCMP were called shortly after 16:00; the fire was held by about 22:45. (CP24 24 Oct; Wikipedia, CBC, NPR)

2.4 Weather: extreme fire danger rating; ~20 °C and ~15 km/h at Wainwright around 13:00; wind warning issued 14:15 for the Lloydminster region (gusts to 100 km/h); temperature fell more than 10 °C within an hour after ~15:00 as the front passed. Base standing orders advise early-morning firing in August–October. (Global News 20 & 22 Oct)

2.5 Investigations: military police (about 30 investigators), a board of inquiry (not yet convened as of 22 Oct), and the Alberta Chief Medical Examiner. No timelines given.

3. The satellite record, 17 October

Every satellite look at the box from late morning to evening. VIIRS pixel size grows from 375 m overhead to ~800 m at the swath edge; a pass can miss a small or smoke-covered fire, so “no fire” means none above that sensor’s threshold, not none at all.

MDT (UTC)	Source	View	Result	Note
12:00–14:40 (18:00–20:40)	GOES-18 & GOES-19, every 10 min	4–5 km pixels	No fire	Skies clear over the box throughout.
12:17 (18:17)	Landsat 8 (via FIRMS, reported by Global News)	30 m	59 possible hotspots, ~1.6 km wide	Not independently verified: Landsat L2 not yet in the open archives we use.
12:51 (18:51)	VIIRS S-NPP	53.3°, ~755 m	No fire	Far off-nadir; low sensitivity.
13:10 (19:10)	VIIRS NOAA-20	45.6°, ~653 m	No fire	
13:54 (19:54)	VIIRS NOAA-21	9.4°, ~387 m	No fire	Near overhead — the most sensitive look of the day.
14:31 (20:31)	VIIRS S-NPP	17.1°, ~414 m	No fire	19 min before the first detection.
14:50 (20:50)	VIIRS NOAA-20	38.6°, ~574 m	8 px, 3 km line, 5.8–11.5 MW each	First detection; inside PDA 2.
14:50 (20:50)	GOES-18	~4–5 km	Cloud starts	Cold front arrives over the box.
15:10 (21:10)	GOES-18	~4–5 km	1 px, 77 MW	Through breaks in the cloud.
15:30 (21:30)	GOES-18	~4–5 km	3 px, ~1,215 MW	Peak — fire run.
15:35 (21:35)	VIIRS NOAA-21	swath edge	No fire	Box at the very edge of the swath.
15:40 (21:40)	GOES-18	~4–5 km	1 px, 336 MW	
15:16 (21:16)	ECCC station CZWN (via Prime Rogue)	13 km WNW	Gust 82 km/h from 269°	Front arrives; wind swings to NW.
~15:19–15:26	Prime Rogue spread model		Fire reaches Range 2 area	Rutland’s “just before 4 p.m.” is approximate.
16:10 → (22:10 →)	GOES-18 & -19		No fire, skies clearing	Flaming front below GOES threshold after the run.
18 Oct 14:06–14:31	VIIRS S-NPP, NOAA-20	4°, 24°	1 px each, 2.7–3.9 MW	Off-base, SE of the boundary; last heat.

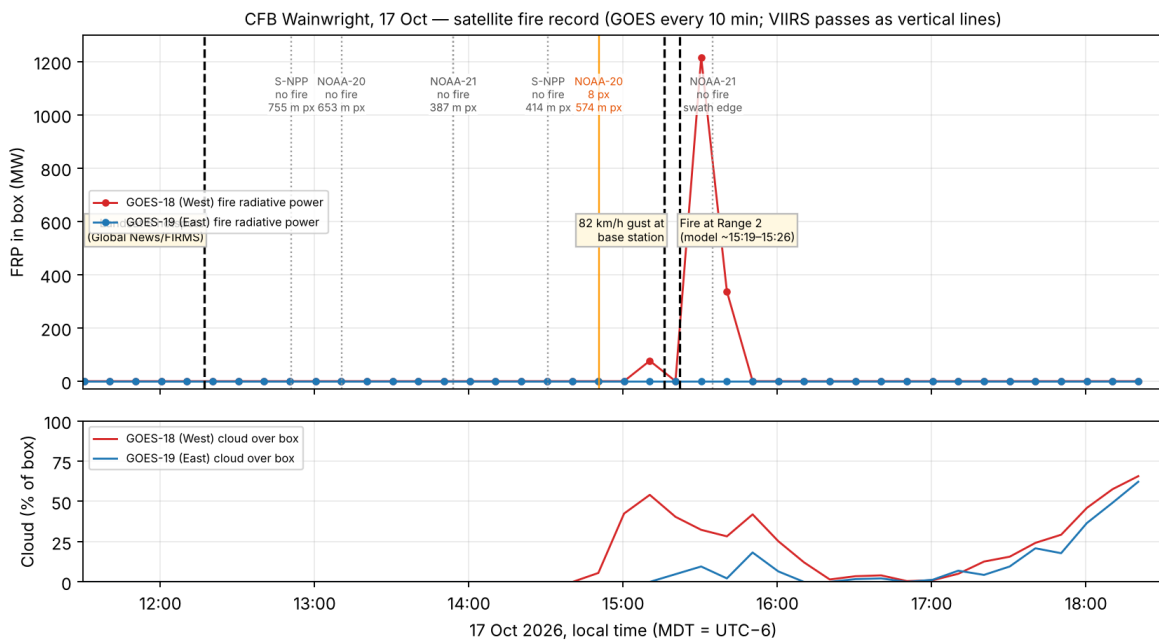


Plate C — 17 Oct fire record. Top: GOES fire radiative power inside the box every 10 minutes; vertical lines are VIIRS passes (grey = no fire, orange = fire) with pixel size. Dashed lines: reported events. Bottom: share of the box under cloud — the front arrives at 14:50.

4. Where it burned

4.1 Comparing a clear 19 Oct Sentinel-2 image with 4 Oct (normalised burn ratio, dNBR > 0.27): **~10.7 km²** burned in the 17 Oct fire. About 9.8 km² is inside the CFB Wainwright boundary and **~0.9 km²** outside it to the south-east; 10.6 km² lies within Permanent Danger Area 2. Grass fires burn lightly, so this threshold is conservative — the visible scar is somewhat larger. A clear 24 Oct image shows the same scar.

4.2 The scar runs north-east from the lake chain to the danger-area boundary and across “Range 2 (Grenade)” (the troops' area) and “Range 3”, with a tongue east across the base boundary (Plate A). The first-detection pixels sit in the north-west part of the scar; the rest burned after 14:50. We cannot see wind direction in this data.

4.3 Sentinel-1 radar passes on 14 and 19 Oct (night) add nothing specific at 20 m. Night lights on 17–18 Oct were clouded out.

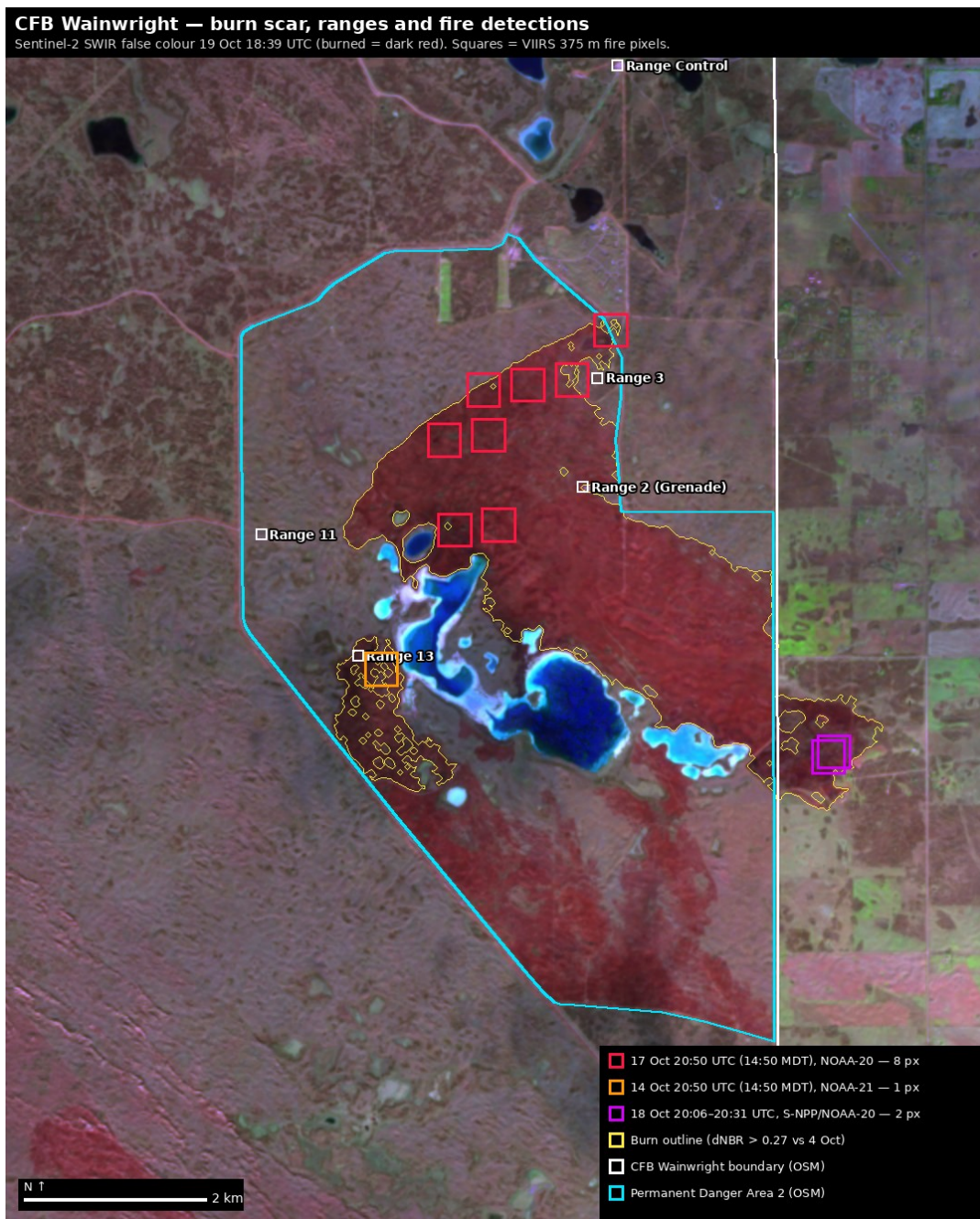


Plate A — Burn scar, ranges and detections. Sentinel-2 SWIR false colour, 19 Oct 18:39 UTC; burned ground is dark red. Red squares: 17 Oct 14:50 MDT VIIRS pixels; orange: 14 Oct; magenta: 18 Oct (off-base). Cyan: Permanent Danger Area 2; white: base boundary (both OpenStreetMap). Range labels from OpenStreetMap. Older red areas south of the lakes pre-date 4 Oct.



Plate B — Before and after. Sentinel-2 SWIR false colour, 4 Oct and 19 Oct 2026, same area as Plate A.

5. The 14 October fire

5.1 NOAA-21 detected one fire pixel (11.7 MW) at 14:50 MDT on 14 Oct at 52.755N 110.939W, inside PDA 2 next to the OSM “Range 13”. A ~ 0.9 km² scar appears there by 19 Oct (Plate D). The 12:39 MDT image that day is partly under cloud shadow at that spot, so we cannot say whether it was burning earlier. No other satellite detected it and we found no public mention.

5.2 Why it matters: it shows range fires were already starting in this danger area during the same dry spell, three days before the fatal fire. Whether it was reported, and whether it informed fire-risk decisions on 17 Oct, is a fair question for the inquiry. Range fires on training areas are common and are often allowed to burn out in danger areas; this one is not evidence of wrongdoing by itself. **NOT IN NEWS**

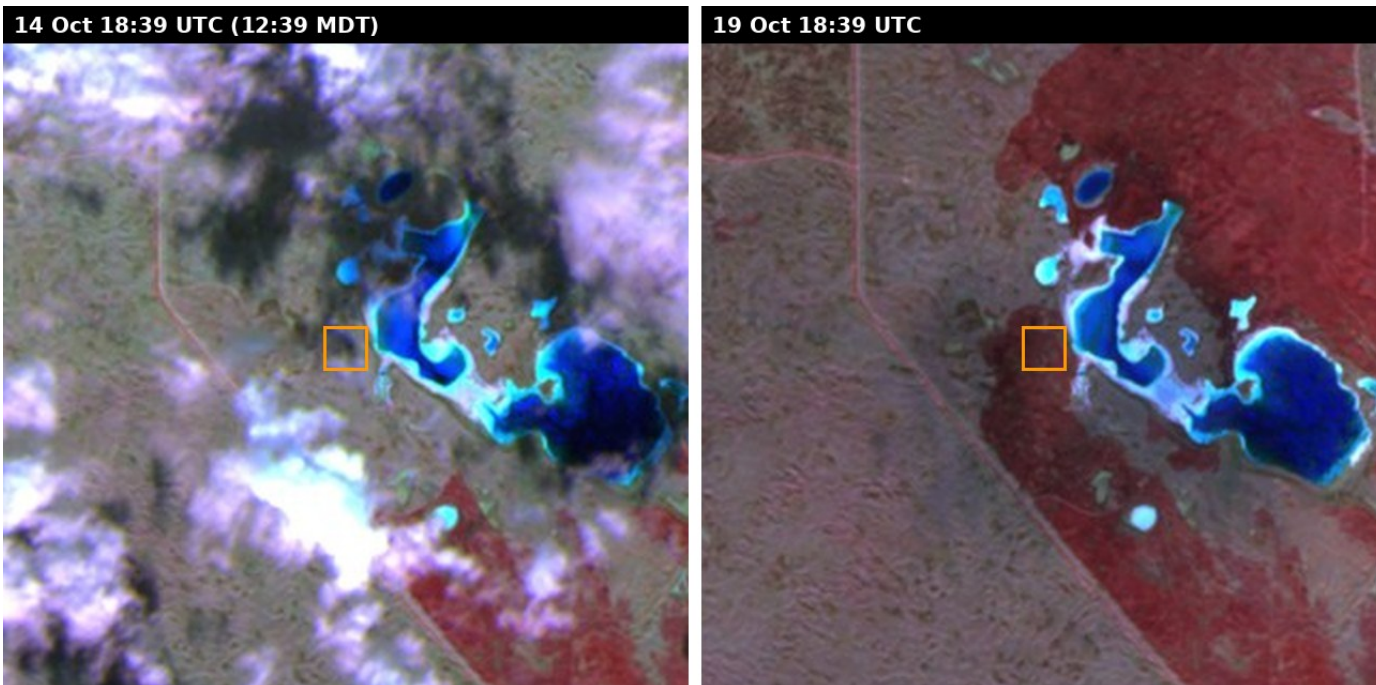


Plate D — 14 Oct fire near Range 13. Orange square: NOAA-21 pixel, 14 Oct 14:50 MDT. Left: 14 Oct 12:39 MDT (cloud and shadow). Right: 19 Oct — new scar at the pixel; the older scar to the south was already there on 4 Oct.

6. Assessment

6.1 High confidence: the fire was in PDA 2 on the range complex; it intensified sharply between ~14:30 and 15:30 MDT as the front arrived; it burned ~11 km² and crossed the base boundary; heat persisted off-base into 18 Oct.

6.2 Moderate confidence: the fire was low-intensity (below VIIRS/GOES thresholds) before ~14:30, though already ~0.44 km² by noon. Satellites can miss small, smouldering or smoke-obscured fires, and Global News's Landsat report says something was burning at 12:17.

6.3 Low confidence / cannot tell: the exact ignition point and time; whether the 14:50 pixels are the fire that later killed the soldiers or part of a broader front; the location of the pairs range (not mapped in OSM).

6.4 What changed since SITREP 001: our earlier “timing discrepancy” is withdrawn as a discrepancy. The official account now describes a pre-existing fire, and the 16:00 figure is when it reached the troops, not ignition.

7. Open questions the data raises

7.1 When did range control first log the 17 Oct fire, and what was its reported size at 14:50 MDT, when it was a 3 km line visible from orbit?

7.2 Was the 14 Oct fire in the same danger area logged, and how was it handled?

7.3 Were the 14:15 wind warning and the forecast front passage (~15:00) communicated to the exercise?

7.4 Are the older scars in PDA 2 from range fires or prescribed burns, and when?

8. Data and method

Sentinel-2 L2A (Element 84 Earth Search) — true colour, SWIR false colour (B12/B8A/B4) and dNBR vs a clear 4 Oct baseline; Sentinel-1 RTC (Planetary Computer); VIIRS active-fire granules VNP14IMG / VJ114IMG / VJ214IMG and NRT versions (NASA LAADS/LANCE via CMR); GOES-18/-19 ABI fire detection (FDCF, NOAA open data); viewing geometry from Celestrak orbital elements; OpenStreetMap landuse=military features. Landsat Collection 2 scenes for 14–25 Oct were not yet available on the open archives used. All raw outputs are in the repository under data/incidents/cfb-wainwright-.*.

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