BULLETIN

NO.: 24-197

DATE: December 26, 2024

TO: All Personnel

FROM: Willy Melendez, Deputy Fire Chief, Employee Services

SUBJECT: Green Sheet – LAFD Green Sheet - Helicopter Emergency

On December 10, 2024, while engaged in fire suppression activities, a Type III engine was severely damaged by a water drop from a Type I helicopter during night flying operations.

I have attached the information summary report - Green Sheet.

- **Refer to SDFD Operations Manual**
  - **SI 10 Section 04 Safety Communications**
    - **Serious Incident Review Team (SIRT)**

Any questions should be directed through the chain of command.

Don't hesitate to contact the Health and Safety Office at SDFDHealth&Safety@sandiego.gov with comments or areas of improvement. For all other questions, contact HSO/Battalion Chief David Picone at 619.533.4466 or dpicone@sandiego.gov

Wellness Resources QR code:
login: sdfd password: wellness
or call toll free **833-SDFD-HSO (733-3476)**

GREEN SHEET

Informational Summary Report of County of Los Angeles Fire Department (LAC)

Serious Injuries, Illnesses, Accidents and Near-Miss Incidents

Apparatus Damaged from Helicopter Water Drop

Franklin Incident
CA-LAC-24-434928

December 10, 2024

This Informational Summary Report is intended to enhance training and safety aid in preventing future occurrences and inform interested parties. Because the report is published in a short time frame, the information contained herein is subject to revision as further investigation is conducted and/or additional information is discovered.

Lookout **C**ommunications **E**scape Routes **S**afety Zones

SUMMARY

While engaged in fire suppression activities, a Type III engine was severely damaged by a water drop from a Type I helicopter during night flying operations.

CONDITIONS

The incident occurred at a ridge top on a paved road in unincorporated Malibu, California.

Location

- 140 Valle Lindo S., Malibu (see map on page 4)
- Division Bravo
- The Type III engine was parked at the top of a road between the fire's edge and a structure.
- The Type I helicopter was airborne and conducting water drops along the road.

Weather

- Area was under Red Flag warning (G)
  - Temperature: 58ºF
  - Relative Humidity: 11 percent
  - Wind Direction: NNE
  - Wind speed: Weather models indicated 20 mph gusting 25 mph. Flight crews reported consistent local winds of 30 - 40 knots (35 - 46 mph) with gusts of 60 knots (69 mph).

Illumination Data - December 9 - 10, 2024

N 34.065°, E 118.680° Tuesday, 2024-December-10 Zone: 8.0 hours West of Greenwich	
Sun	
Set	00:56
End Civil Twilight	01:24
Begin Civil Twilight	14:33
Rise	15:01
Upper Transit	19:59
Moon	
Upper Transit	03:33
Set	10:06
Rise	21:40

(Note: U.S. Daylight Saving Time conversion is not included)

Closest Primary Moon Phase: First Quarter on 8 December 2024 at 07:26

Phase of the moon on 10 December 2024: Waxing Gibbous with 74% of the Moon's visible disk illuminated.

N 34.065°, E 118.680° Monday, 2024-December-9 Zone: 8.0 hours West of Greenwich	
Sun	
Set	00:56
End Civil Twilight	01:24
Begin Civil Twilight	14:32
Rise	15:00
Upper Transit	19:58
Moon	
Upper Transit	02:45
Set	08:58
Rise	21:10

(Note: U.S. Daylight Saving Time conversion is not included)

Closest Primary Moon Phase: First Quarter on 8 December 2024 at 07:26

Phase of the moon on 9 December 2024: Waxing Gibbous with 63% of the Moon's visible disk illuminated.

Fire Conditions

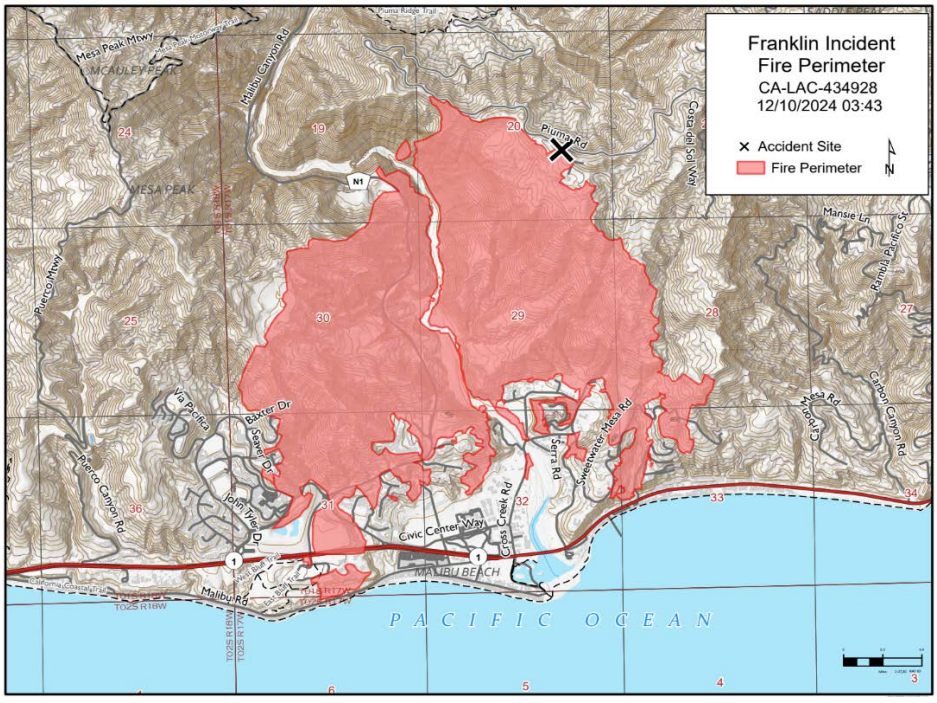
- Although the predominant wind over the fire area was from the north, as observed from the Piuma Road RAWS station, the fire was approaching the site from the south. The fire was being driven by continuous fuels, steep slopes, and possibly by the wind that was being channeled through Malibu Canyon blowing from the west/southwest. Once the fire progressed to the upper portions of the slope, near the ridge top, it was influenced by the north wind. The complex interaction of the west/southwest winds in Malibu Canyon and the predominant north/northeast wind on the ridge creates a difficult problem when it comes to modeling the fire behavior and providing accurate estimates.

- To provide a model-generated estimate of the fire characteristics and account for the effects of the battling winds, an assumed wind speed of 10 to 15 mph upslope was used as the model input, and a range of outputs is provided based on varying wind and fuels.

Make/Model of Equipment

- BME Model 34 2019 International 7400 - Type III engine

- Sikorsky S70 Blackhawk - Type I helicopter



SEQUENCE OF EVENTS

On December 9, 2024, at 2250 hours, the Los Angeles Command and Control Center dispatched a 1st Alarm Brush response to South Malibu Canyon Road. Three helitankers, two Type I helicopters, two Type II helicopters, and a helicopter coordinator were on the initial first alarm. The initial incident commander, LAC BC5, requested a second alarm at 2303 hours and a third alarm at 2318 hours. From 2250 to 0343 (event) to 0700 hours, the fire progressed from an initial to extended attack incident.

The Type I helicopter involved in this incident had completed 127 water drops during the operational period in an extreme wind event with erratic fire behavior.

At 0315 hours, the Type I helicopter was supporting ground crews with point protection, seeking targets of opportunity.

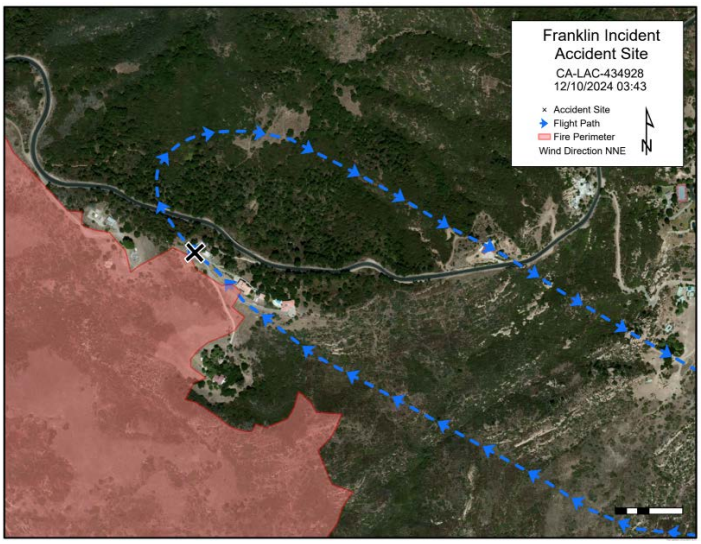
At 0319 hours, Division Bravo relayed to HLCO and the Type I helicopter that they had a couple of spots that needed to be addressed close to Piuma Road.

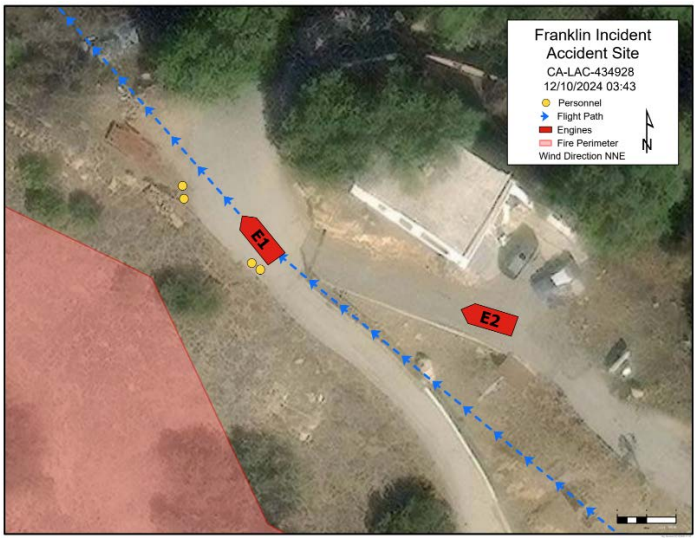
Simulated UAS Flight

At 0333 hours, the Strike Team Leader of the Type III engine contacted the Type I helicopter to continue working that section starting at the mansion at the top of the hill and working down to the Type IIIs.

At 0343 hours, Strike Team Leader contacted HLCO and informed them that the last water drop struck one of his engines and that the engine was mechanically out of service with no injuries to personnel.

Actual Water Drop Footage





INJURIES/APPARATUS DAMAGE

Injuries

- No injuries to the crew of the Type III engine.

Apparatus Damage

- The Type III engine sustained a broken windshield along with damage to the roof of the vehicle. The roof of the engine displayed buckling and deformation consistent with the impact of approximately half of the volume of water (approximately 700 gallons total) dispensed from the helicopter. All windows other than the front window remained intact without shattering. The light bar was fractured and displaced. The front grill was displaced and likely carried by the impact of the water to a location approximately 25 to 30 feet in front of the engine. There was other damage present to ancillary components. Despite the impact of a significant portion of a water drop from a Type I helicopter, the cab of the engine retained the characteristics of a survivable space.

- The Type III engine continued to run; however, all the engines audible mechanical function alarms activated and sounded until the engine was shut down.

LESSONS LEARNED

- Understand the dangers of aerial water and retardant drops, especially at night.
- Transmit a read back of critically received radio transmissions such as priorities, locations of resources, and hazards.
- Personnel assigned to an incident where aircraft are being utilized must understand where ground resources are assigned and working. This is especially true when aircraft are working in proximity to ground crews.
- Aircraft must coordinate with ground resources to clear the line and be prepared for the potential of a “go-around” if not verified.
- Helicopters shall not drop until the line is confirmed clear.
- Always conduct a risk/benefit analysis when engaging aircraft in proximity of ground resources and provide training to correct any normalization of deviance from safe line clearance principles.

SAFETY ISSUES/REVIEW

- Understand the dangers of dropping water and/or retardant day or night. The weight of water dropped by a Type I helicopter can total up to 8,500 pounds, and can reach speeds in excess of 20 mph. Given these facts, being hit by the central column of water dropped from a Type I helicopter would be roughly equivalent to being hit by a Type III wildland engine traveling at 20 mph.
- Review FIRESCOPE ICS 800 Night Flying Guidelines
- Review Aviation Safety Bulletin
- Review Night Flying Initial Attack Checklist
- Review Night Flying Extended Attack Checklist
- Provide lessons learned and case reviews of low drops that have caused death, major injury, or damage.