Incident Summary Page for the 100 Fires Project

Incident Name:	**Incident Date & Time:**
Sadler Complex	08/09/1999 @ 15:40
Incident Location:	**Incident Size:**
Dixie Creek drainage south of Elko, Nevada	209,000 acres
Type of resources involved:	**# of Fatalities/injuries:**
National Park Service Type 2 hand crew	6 injuries

Reason this fire was selected for the 100 Fires list:

- Fire made a notable impact within the wildland fire service

Conditions leading up to the event:

On August 5, 1999, a dry lightning storm passed through northern Nevada igniting numerous wildland fires. The Sadler, Table, Horse, and Pine Fires were combined to form the Sadler Complex south of Elko, Nevada. The Nevada Department of Forestry (NDF) provided an initial attack and set up the initial Incident Command Post (ICP) at a highway rest area about 30 miles south of Carlin, Nevada. As the complexity of the incident increased, a Type 3 Incident Management Team (IMT) was assigned to the fire.

On August 6, a Type 2 IMT was assigned to the complex and the ICP and base camp were moved to a location along State Highway 278 about 20 miles south of Carlin in Pine Valley. On August 8, a spike camp was established near the town of Jiggs, Nevada, on the east side of the Sadler Fire.

On August 7, the Elko Field Office of the Bureau of Land Management and NDF ordered a Type 1 IMT. The morning of August 8 the Type 1 IMT arrived in Elko, Nevada. Team members received an agency briefing at 14:00 and attended a transition briefing with the Type 2 IMT at 19:00. After the meeting, the Type 1 IMT went to the ICP and to the fireline in order to "shadow" the Type 2 IMT in preparation for the team transition. The Type 1 IMT assumed command of the Sadler Complex at 06:00 on August 9.

During this same time frame, the National Park Service (NPS) Pacific-West Region was mobilizing a Type 2 hand crew called Golden Gate 3 (GNP3). On August 6 they assembled at the Golden Gate National Recreation Area near San Francisco, California. The crew consisted of 21 members from multiple NPS units across California, many of the crewmembers were not primary fire personnel. The crew traveled all night, stopping several times for fuel and meals. GNP3 arrived at the Sadler Complex on the morning of August 7, was immediately assigned to the Pine Fire, and worked on the line until about 22:30. On August 8 the crew worked on the Sadler Fire from 06:00 to 23:00 and reported to Jiggs Spike Camp that night.

Brief description of the event:

August 9, 1999

06:00 - The morning briefing in Jiggs Spike Camp for Branch II started unannounced, as a result several crews and overhead missed some or all of it. The briefing placed little emphasis on a Red Flag Warning that had been issued for high winds, low relative humidity (RH), and unstable atmospheric conditions. The Incident Action Plan (IAP) forecast called for extreme fire behavior with high rates of spread, south winds increasing in afternoon, minimum RH 6-12%, Haines Index of 6, maximum temperatures of 85-91°F, and 1 hour fuel moisture of 3%. However, there were not enough IAPs for everyone, including the Golden Gate 3 Crew (GNP3) Crew Boss and Division Oscar. Extreme fire behavior was discussed at the GNP3 crew briefing and characterized as "normal." All resources were told to meet at a location referred to as the Big Safety Zone. En route, the GNP3 bus had mechanical problems and broke down about a mile from the Big Safety Zone. The crew left the bus on the road and continued on foot to the Big Safety Zone.

09:00 - At the Big Safety Zone, GNP3 was assigned to support two Interagency Hotshot Crews (IHCs). The crews were asked to backfire from the Big Safety Zone going northwest to the "Y" and then west along the dozer line to the Black Safety Zone (see diagrams below). The dozer line was about ½ mile north of the head of the fire at this point in time. Initially the northeast corner of the fire was divided into two divisions, Oscar, and Quebec with each assigned a DIVS. At some point the two divisions were combined and called Quebec (Q) with one DIVS.

11:00 - After a recon, the IHC Superintendents refused to accept the backfire assignment until the line south of Big Safety Zone was secure. There was heavy old growth sage (6 to 8 foot tall) south of the Big Safety Zone, and the main fire was occasionally moving towards the east line. The unassigned DIVS and the two IHCs left to secure the line south of the Big Safety Zone. GNP3 waited in the Big Safety Zone. Upon arrival south of the Big Safety Zone the IHC's found a spot over the control line which was lined. The IHC's split at the finger that hit the main fireline and started the firing operation, one burning south of it and one north of it.

13:00 - GNP3 crew boss had advised *"the crew has lots of burning experience"* and was requested by the Branch II Director (who was only a Red Carded DIVS) and DIVS Q to backfire across the head of the fire. GNP3 accepted the assignment to backfire across the head of the fire, but in a reverse direction, starting from Black Safety Zone going west to east toward the "Y."

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14:00 - Ignition was delayed due to unfavorable winds. Branch II and DIVS Q felt if they *"didn't attempt a burn, the fire would get away."* The fire at that location was headed towards a dry lake with very sparse fuels approximately one mile away. There was a subdivision located north of the fire, but it was also north of the dry lake. The plan was changed to backfire from the "Y" going east to west instead…the very plan the IHCs refused.

14:30 - Due to concerns regarding GNP3's lack of experience and fitness, only three crewmembers and the Crew Boss were used for the backfiring operation. The two IHC's were not advised of any crews attempting the backfiring operation across the head of the fire.

15:00 - The GNP3 igniters began firing from the "Y" without an anchor point, supported by a single engine. The fireline behind them was not secured. Due to hills, no one on the firing squad could see the main fire and there were no aircraft to assist as a lookout. Because of the occasional wind shifts, the igniters had to walk very fast and occasionally trot to keep ahead of their firing, so they were unable to use the black as a safety zone.

15:15 - Back behind the GNP3 firing squad, the engine was very busy picking up multiple spot fires and slopovers. The Engine Boss attempted to radio the firing squad to stop the ignition, there was no response. The tactical channel being used by the other firing operation and two other divisions was overloaded with traffic.

15:30 - Halfway through the 1.3-mile backfire, two more GNP3 crew personnel including the CRWB(t) were dropped off at the firing operation by NDF personnel. They had not been involved in the decision to accept the assignment and had not attended the pre-burn briefing.

15:40 - Branch II and two Dozer Bosses watching the backfire saw the main fire become visible and take off down the hill toward the GNP3 firing squad. They attempted to warn the firing squad but were unable to make radio contact. Shortly after, the main fire became visible to the firing squad as it crested the ridge to the south. It was described as a *"river of fire"* as it made a run at the dozer line and crew with speeds in excess of 300 feet/minute and 15-foot flame lengths.

The engine was cut off from the firing squad and retreated to a safety zone. The order to *"Run!"* was given to the firing squad. Tools and gear were dropped on the way to the safety zone, almost 600 feet away. While trying to escape to the nearest safety zone, the group became separated. Some were forced off the dozer line into the green due to intense heat and smoke. Many unsuccessfully attempted to deploy their fire shelters. A fortunate wind shift reduced the smoke and intense heat on the firing squad and allowed them to reach the safety zone and then move on to the Black Safety Zone. The remainder of the crew had stayed in the Black Safety Zone, moving even deeper in the black while observing the situation unfolding.

All six members of the firing squad were injured. One crewmember who was an EMT suffering from smoke inhalation was asked to provide first aid for the others prior to transport. Two crewmembers were transported by helicopter to ICP for initial treatment and then by ambulance to the hospital in Elko. The remainder of the firing squad regrouped with the rest of the crew and was transported by bus to the hospital. In all, three crewmembers were treated for second degree burns and smoke inhalation and kept overnight for observation and the other three crewmembers were treated for smoke inhalation and released.

Fire behavior factors that were present during the event:

Though a Red Flag Warning had been issued for high winds, low RH and unstable atmospheric conditions, there was little emphasis placed on the weather and fire behavior forecast for the day at the Jiggs briefing. The fire behavior forecast issued on the IAP called for extreme fire behavior with high rates of spread. Dry conditions with increasing southerly winds were expected in the afternoon. These are the fire behavior conditions for that day:

Slope: 25% Wind speed: 12-16 MPH; Gusts: 23-27 MPH Wind direction: Variable SW to SE (down slope) Relative Humidity: 7% (nearby RAWS) Probability of ignition: 90% 1 hour fuel moisture: 3%	10-hour fuel moisture: 5-7% 100-hour fuel moisture: 5-7% Live fuel moisture: < 80% Rate of spread: 216 - 367 chains per hour Flame length: 15-19 feet Haines Index: 6 (Elko)

Operational lessons available for learning from this incident:

Transition: Transfer of command on incidents with ongoing extreme fire behavior can create confusion and a self-imposed sense of urgency. Throughout the shift, resources arriving at the Sadler Fire were immediately assigned and sent to division supervisors without regard for span of control or briefings.

Firing Operations: Firing operations at the head of a large fire with extreme fire behavior requires careful planning and execution. For the existing conditions on the Sadler Fire in Division Q the pre-identified safety zones along the dozer line were too small and too far apart.

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Leadership: Fireline overhead need to be self-aware enough to adapt their operational plan to match the capabilities of their assigned resources. Turn downs for safety concerns should prompt changes in the operational plan, not changes in the resources.

Crew Cohesion/Human Factors: The rapid assembly and mixture of personnel on the GNP3 crew did not allow time to develop any cohesion. There were 21 strangers trying to work together to suppress a large fire under extreme conditions. This incident led to the NPS changing protocol for mobilizing Type 2 crews to provide for better crew cohesion prior to dispatch.

Notable impact or historical significance for the wildland fire service from this incident:

An assignment turn down protocol (sometimes called "legitimate dissent") was formulated and placed in the second edition of the *Incident Response Pocket Guide* (IRPG) titled as "How To Properly Refuse Risk".

Following the recommendations of the interagency investigation team this became the first time a national IMT has been disbanded as a result of performance. Five team members had fire qualifications for their position on the IMT suspended until they could be recertified.

Links to more information on this incident:

https://lessons.wildfire.gov/incident/sadler-fire-entrapment-1999
https://www.nwcg.gov/committee/6mfs/sadler-fire
https://www.slideserve.com/noel/sadler-fire-staff-ride
https://www.yumpu.com/en/document/read/51251181/sadler-fire-staff-ride-wildland-fire-leadership-development
https://wildfiretoday.com/2010/01/13/sadler-fire-who-should-have-been-held-accountable/
https://wildfiretoday.com/documents/Sadler_Fire_Entrapment_analysis.pdf
https://www.deseret.com/1999/12/15/19480649/blunders-blamed-for-injuries-in-nevada-fire-br-osha-scorches-actions-of-team-led-by-a-utahn

Links to Training:

- https://www.fs.usda.gov/eng/lessons/documents/Crew_Cohesion/pdf02512809.pdf
- https://www.nwcg.gov/committee/6mfs/transfer-of-command

Book:

- *Fire and Ashes* (Chapter 2 Ghosts of Storm King) ~ By John N. Maclean

The Wildland Fire Lessons Learned Center offers an excellent site which provides information on many wildland incidents:
Wildland Fire Lessons Learned Center's Incident Review Database (IRDB) (wildfire.gov)

This summary page was proudly provided by:
Rich Dolphin, former Superintendent Smokey Bear Hotshots

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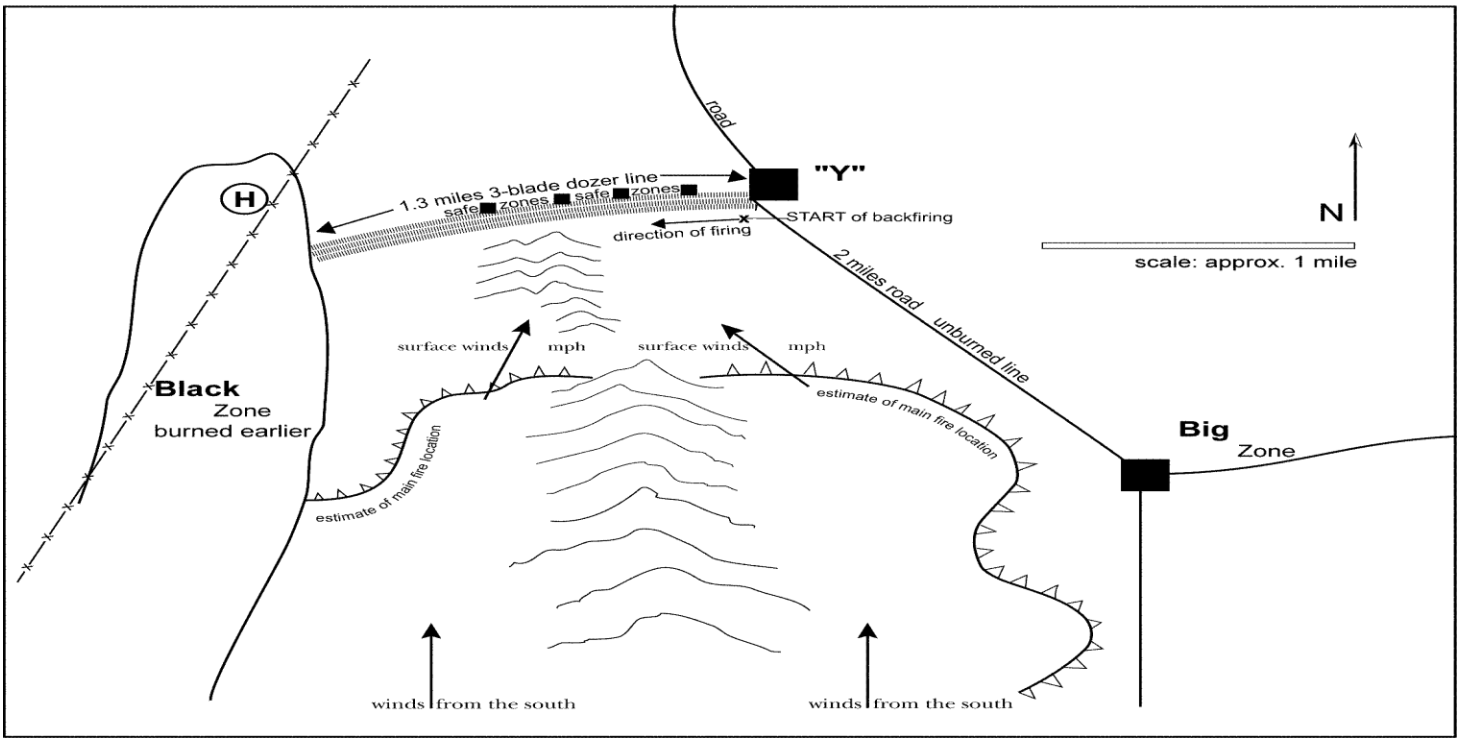
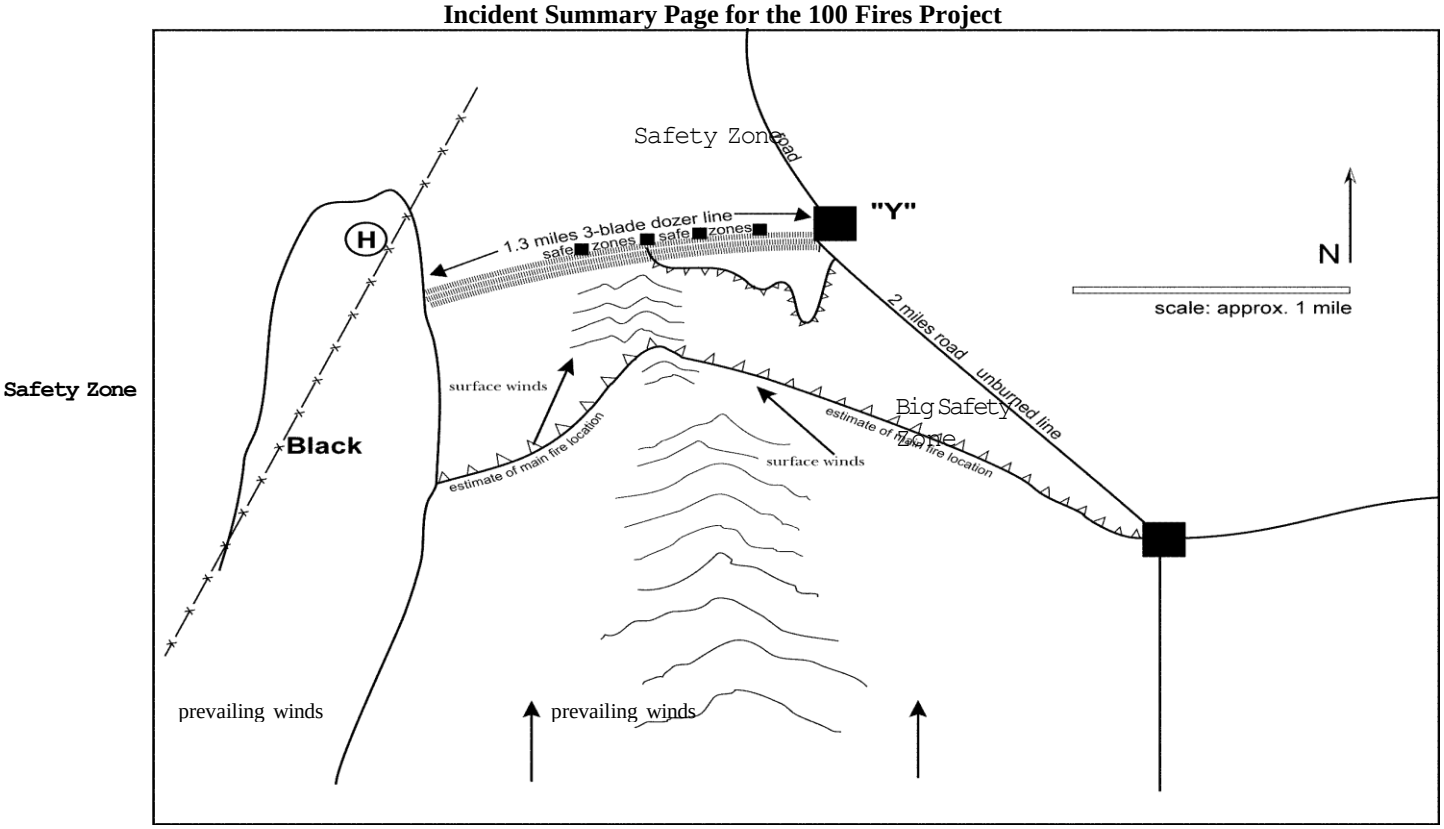
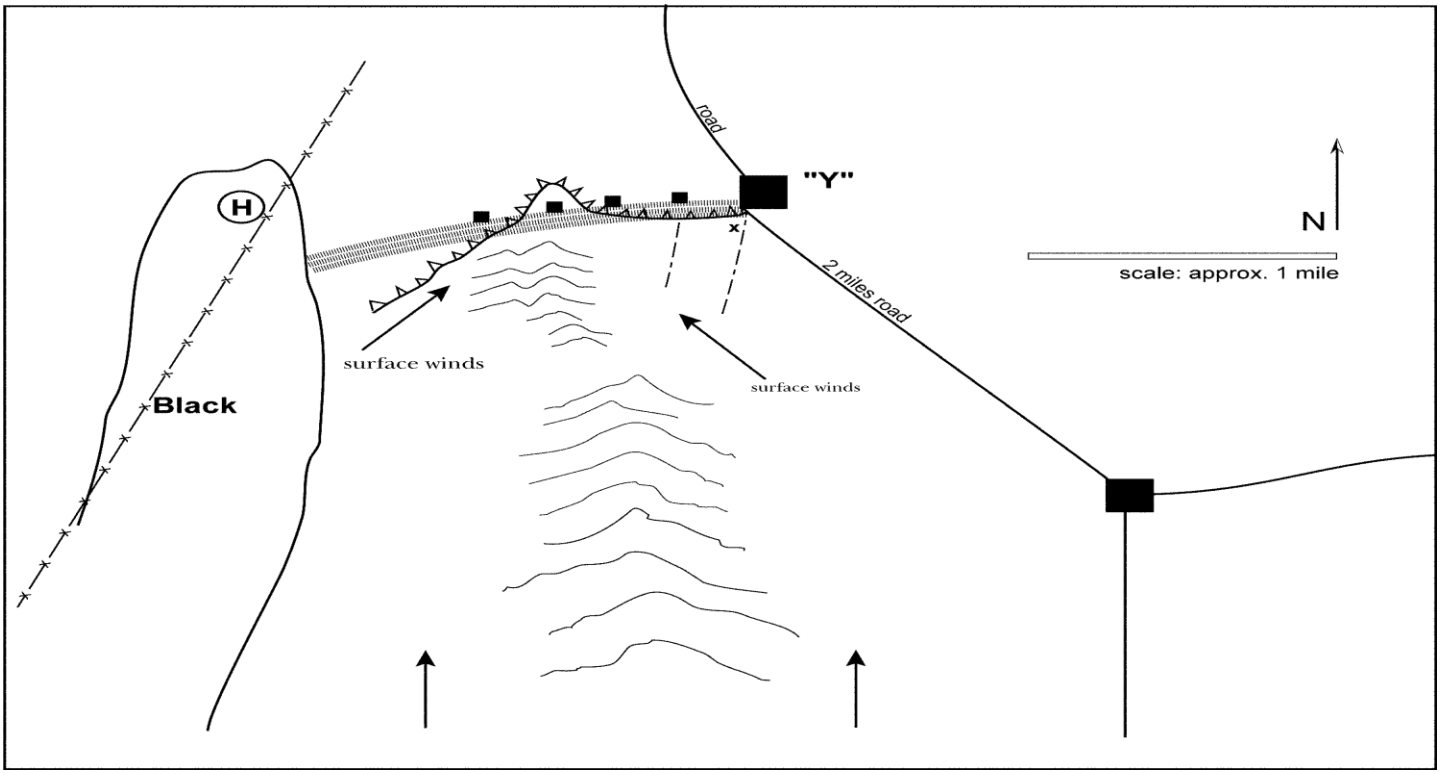
The main Sadler fire approaches the backfiring operation



August 9, 1999, at 15:00 the backfiring operation begins



Location of the firing squad at 15:30



Location of the firing squad at 15:40 when they were overrun by the main fire

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The entrapment site and firing squad's safety area