

Tripp Lake Road Fire Entrapment

October 6, 2011



Tripp Lake Road Fire

Tripp Fire Department

Hutchinson County

South Dakota

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Summary

The Tripp Lake Road Fire Entrapment report is a synopsis of the events that took place on the Tripp Lake Road Fire in Hutchinson County South Dakota on October 6th 2011. The purpose of this report is to summarize the events that took place leading up to and following the entrapment. We also hope that by completing this review future injuries or entrapments may be avoided.

The fire was located approximately 2 miles southwest of Tripp, South Dakota. The fire was burning in a mix of grassland and cropland. The terrain was gently rolling with some wet draws. The wind the day of the fire was south/southeast at 10-15 with gusts to 30 as reported at the Parkston Municipal airport from 1300 – 1600.

Harvest was in full swing in eastern South Dakota and the area had seen several fires in the week leading up to the Tripp Lake Road Fire. The Tripp Fire Department had been on several fires as a mutual aid resource the week leading up to the fire.

The fire was ignited by a combine during harvest operations and was believed to be knocked down. The resources on the fire were refilling with water when the fire escaped control and made a 2 mile run to the north and west. The entrapment occurred after the initial fire was knocked down and when the fire made it's run to the north.

One firefighter received 2nd and 3rd degree burns to his arms and hands and minor burns to his face.

On November 9th the South Dakota Wildand Fire Suppression Division arrived in Tripp to review the events of the Tripp Lake Road Fire and help firefighters share their story and lessons learned.

Conditions

Fuels

Fuels in the Tripp Lake Road Fire consisted of prairie grasses (brome) and a mix of harvested and un-harvested cropland (corn and soybeans). The grass had grown very tall (30") due to heavy spring moisture.

All of the fuels in the area were cured. The Fine Dead Fuel Moisture calculated at the time of the entrapment from the weather observations at the Parkston Airport (84 degrees, 22% RH) was 4. The calculated Probability of Ignition from the same observations was 80%.

Weather

Past Weather Conditions for K8V3

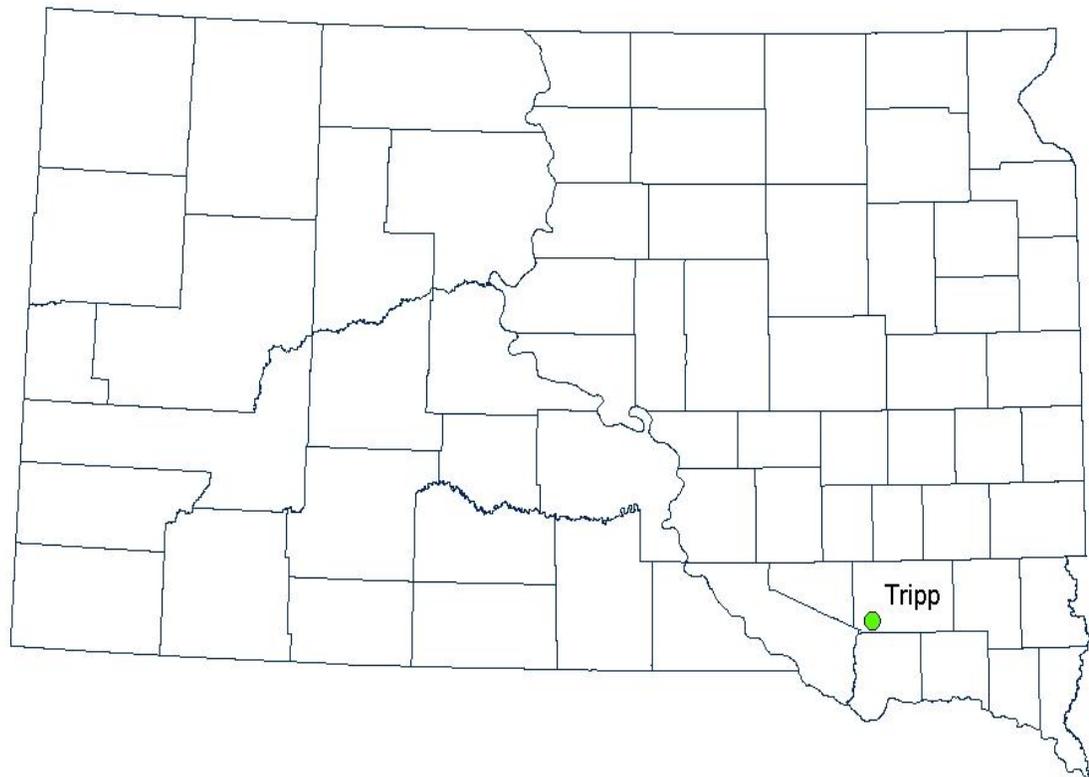
Time(CDT)	Temperature ° F	Dew Point ° F	Relative Humidity %	Wind Speed mph	Wind Gust mph	Wind Direction	Quality check	Pressure in	Sea Level Pressure in	Altimeter in	Visibility miles
16:55	78.8	41.0	26	8		SE	OK	28.38	29.80	29.88	10.00
16:35	80.6	41.0	25	10	18	SSE	OK	28.37	29.79	29.87	10.00
16:15	80.6	41.0	25	15	23	SSE	OK	28.37	29.79	29.87	10.00
16:55	82.4	42.8	25	18	26	SSE	OK	28.37	29.78	29.87	10.00
16:35	82.4	41.0	23	13	25	SSE	OK	28.37	29.78	29.87	10.00
16:15	84.2	42.8	23	10	26	S	OK	28.37	29.78	29.87	10.00
15:55	84.2	41.0	22	15	29	SSE	OK	28.38	29.79	29.88	10.00
15:35	84.2	42.8	23	16	26	S	OK	28.38	29.79	29.88	10.00
15:15	84.2	41.0	22	20	29	SSE	OK	28.38	29.79	29.88	10.00
14:55	84.2	41.0	22	16	28	S	OK	28.39	29.80	29.89	10.00
14:35	84.2	41.0	22	18	28	SSE	OK	28.39	29.80	29.89	10.00
14:15	84.2	41.0	22	15	28	SSE	OK	28.39	29.80	29.89	10.00
13:55	86.0	42.8	22	13	24	SSE	OK	28.40	29.80	29.90	10.00
13:35	84.2	41.0	22	18	31	SSE	OK	28.40	29.81	29.90	10.00
13:15	84.2	41.0	22	16	31	S	OK	28.41	29.82	29.91	10.00
12:55	84.2	42.8	23	18	26	S	OK	28.42	29.83	29.92	10.00
12:35	84.2	42.8	23	16	29	S	OK	28.43	29.84	29.93	10.00
12:15	84.2	42.8	23	16	26	S	OK	28.44	29.85	29.94	10.00

Topography

The topography across the fire consisted of gently rolling hills with some wet draws. The road ditch where the entrapment occurred was a steep drop off, approximately 5 feet deep, along a paved road.

County gravel roads can be found at every mile in each direction. The Tripp Lake Road is an east-west paved road that leads from Highway 37 south of Tripp to Tripp Lake. The Tripp Lake Road is approximately $\frac{3}{4}$ of a mile north of the point of origin and the location of the entrapment.

Vicinity Map



Narrative

Resources involved in the Tripp Lake Fire incident began arriving onto the southeast corner of the fire on October 6th. Resources that assisted that afternoon included volunteer fire departments from Tripp, Delmont, Scotland, Parkston and Armor. They were all experienced local resources.

Tripp Engine 1 staffed w/2, Tripp Engine 2 staffed w/3 (both type 6 engines), and Tripp Engine 3 w/2 (Type 4 engine), responded to a combine fire near Tripp Lake Road south and east of Tripp, South Dakota arriving on scene at 1308 and began initial attack of the fire. They completed a wet line around 100% of the fire. After the wet line was established Engines 1 & 3 ran out of water and returned to the arriving tender to refill. Engine 2 responded back to the farm equipment at the request of the local farmer to put out smoke in the engine area of the combine. Engine 2 was returning to the tender to fill and observed smoke and flame showing at the far north end of the fire. The fire had escaped the wet line and was making a run to the north toward the Tripp Lake Road black top. Engine 2 returned to the tender and firefighter #1 is instructed to staff Engine #3 that is half full of water and needing a driver. The driver who had originally responded on Engine 3 had left to staff Engine #4 that had arrived on scene with only one firefighter. Firefighter #1 left Engine 2 for Engine 3 wearing his bunker pants and boots, leaving the remainder of his PPE in Engine 2. Engine 3 began working along Tripp Lake Road black top heading west toward the main fire with firefighter #2, who originally responded on Engine 3, operating the monitor nozzle extinguishing fire along the south road ditch. Firefighter #1 encountered zero visibility and became very disoriented causing the engine to drift off the road and into the south ditch hanging up and stalling the engine. Firefighter #2 feels as if the truck is going to roll to its side and jumps from the truck landing on the black top twisting an ankle. He heads back to the east following the edge of the road as his guide wearing full protective gear. Firefighter #1 exits the cab wearing only bunker pants and boots and tries to make it to the road. He encounters and becomes entangled in a four strand barbed wire fence. Pulling his stuck pants from the fence and making it back to the truck in the intense heat and zero visibility, he then goes down the ditch to the west and out of the fire. He crosses the fence to the south and goes through the black back to the east side and meets up with fire fighter #4 and the tender operator. The tender operator called for a private party to get fire fighter #1 the medical attention that is needed. The entrapment that occurred to firefighter #1 happened approximately 1 hour into the incident.

Engine 4 then continued with a direct attack method along the south and east flanks of the fire as smoke conditions and fire behavior allowed. Engine 2 responded to the north and west side of the fire and utilized an indirect attack due to smoke and fire conditions.

The Tripp Lake Road Fire eventually made a run for a mile and ½ to the north and west into idle acres and cropland. With the assistance of local farmers with tractors and discs, the Tripp Lake Road Fire was contained.

Lessons Learned

1. Try and keep one engine with water on the fire at all times.
2. Do not drive in areas of heavy smoke or when visibility is greatly reduced.
3. Wear PPE during all fire operations.
4. Fire departments on the Tripp Lake Road Fire did not have a common tactical frequency. Work with local agencies to develop a scene of action communication plan.
5. Ensure evacuation is part of the tactical decision making during initial attack of fires during extreme weather events.
6. Work with local ag related industries (seed and chemical dealers, farm cooperatives) to develop a process for acquiring tractors with discs from local farmers.
7. Continue practice of attacking wildland fires from the black.
8. Fence cutters on all fire engines.
9. Fire department is going to purchase PPE specific to wildland fire.
10. Soybean leaves provide a source for spotting over your control lines.

The review team would like to mention the value of the aerial photographs taken by the Tripp Volunteer Fire Department and would recommend that these post fire photographs become standard operating procedures for these reviews in the future.

Review Team

Jay Wickham

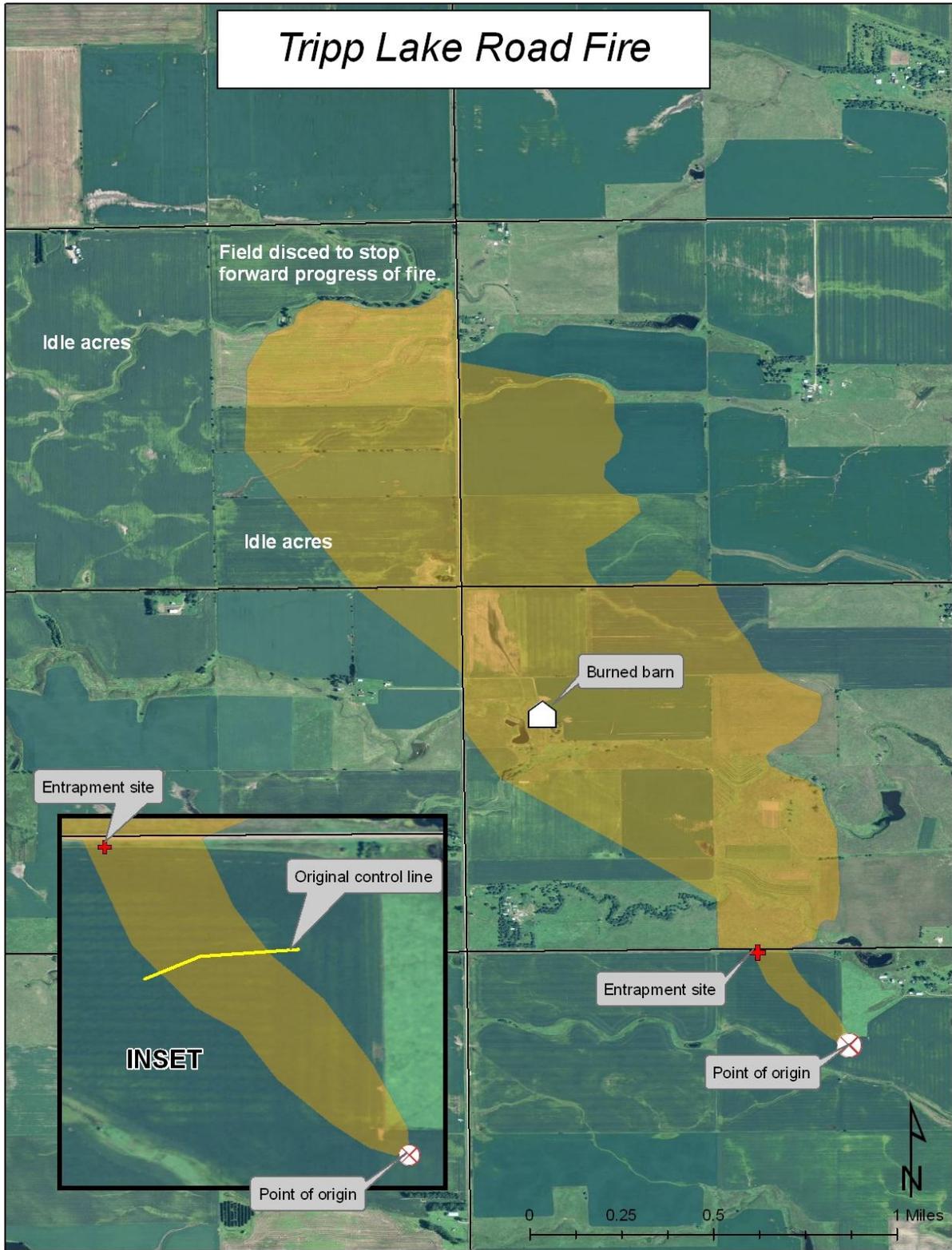
Fire Management Officer, SD Division of Wildland Fire Suppression,
Custer State Park Field Office

Les Madsen

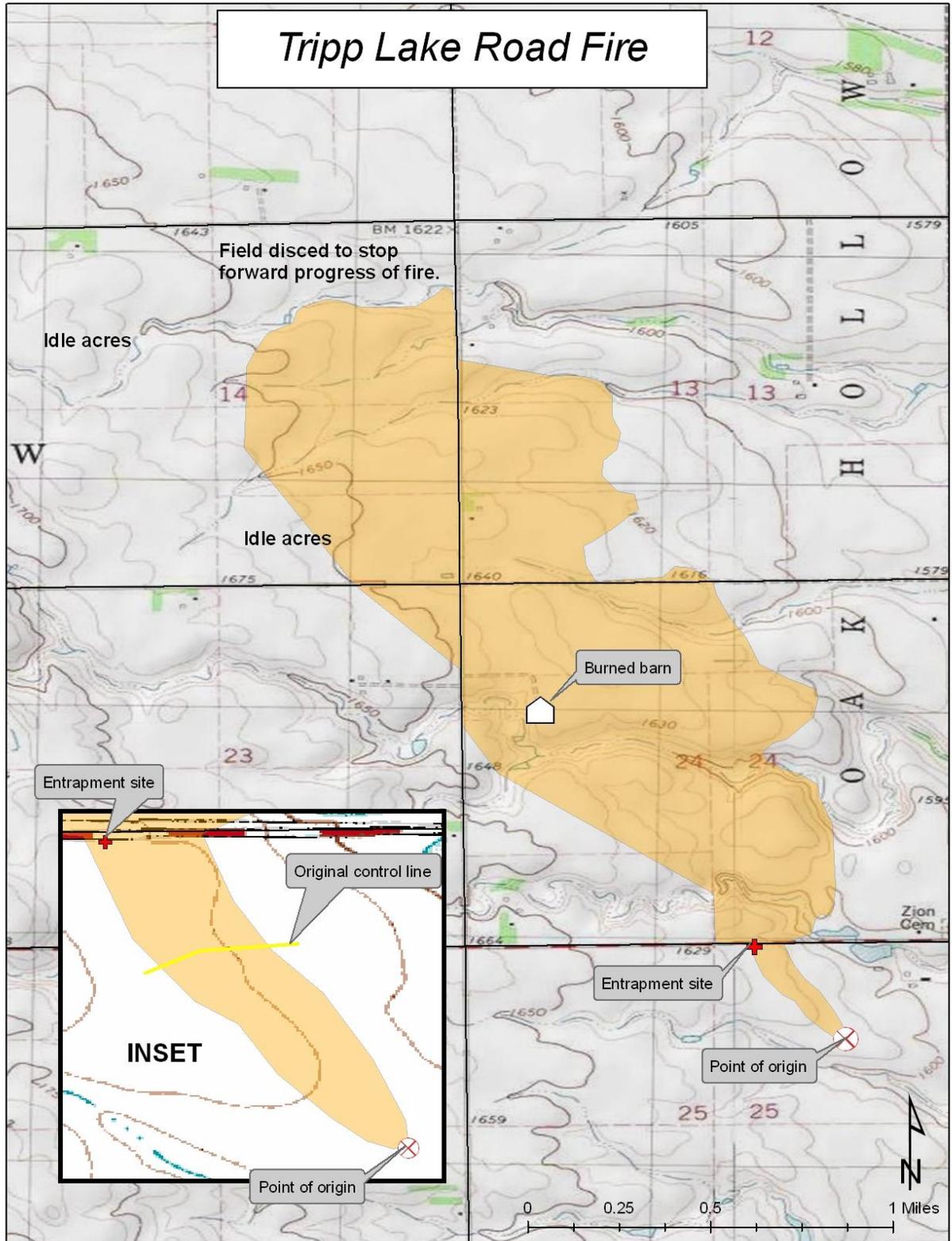
Fire Management Officer, SD Division of Wildland Fire Suppression,
Hot Springs Field Office

The review team would like to thank Samantha Nichols with SD GF&P for her assistance with the maps included in this report.

Tripp Lake Road Fire



Tripp Lake Road Fire





Looking Northeast from point of origin



East flank of fire looking west



Northwest corner of fire looking south



West side of fire. Notice new starts on north side of fallow field from spotting (1/4 mile)



Entrapment site looking south



Entrapment site looking north



Fuel loading in ditch near entrapment site



Tripp Volunteer Fire Department Engine driven during entrapment.