On Feb 25, 1996, a snowmobile collision took place on the Big Sky snowmobile trail just north of West Yellowstone, Montana. Plaintiff Brian Musselman and party had rented snowmobiles in West Yellowstone while on vacation. On the night of the accident, Musselman and several friends were riding back to West Yellowstone on the Big Sky trail. Brian Musselman encountered an unwarned of drop off on the otherwise well signed trail. Although Musselman was not injured at that time, he got off of his snowmobile to warn the others of the hill. As he went back to the hill, one or more of the oncoming machines driven by Jamie Leinberger and Patrick Kalahar hit him causing serious injuries. The following are excerpts from the decision published by Judge Molloy of the United States District Court in the District of Montana focusing on the trail design and signage issues raised at trial.

Plaintiff's Accident Reconstruction, Snowmobile Safety & Trail Design Expert: *Richard Hermance*
Plaintiff's Human Factors Expert: *Dr. Robert Kennedy*

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MONTANA
BUTTE DIVISION

LORI OBERSON, Legal Guardian for BRIAN MUSSELMAN, an incapacitated person, and KIMBERLEE MUSSELMAN, Individually and as Natural Mother of DEVON MUSSELMAN, a minor,

CV 99-48-BU-DWM

Plaintiffs,

v.

UNITED STATES OF AMERICA; acting Through the U.S. Department of Agriculture, Forest Service, and DOES A-Z, inclusive,

Defendant.

INTRODUCTION

On February 25, 1996, 35-year-old Brian Musselman was involved in a snowmobile accident on a snowmobile trail north of West Yellowstone, Montana, which caused him catastrophic brain injuries. Musselman was an expert snowmobiler who had been inducted into the Michigan Snowmobile Hall of Fame. His entire life was involved with snowmobiles. In addition to racing, he was

an executive of a family-owned business that designed, developed and manufactured parts and devices for production snowmobiles as well as racing snowmobiles. He was earning nearly $350,000 a year. As a result of this devastating accident, he went from being a robust, energetic business executive and expert snowmobile racer to being a helpless human form, unable to care for himself in any manner, confined to feeble grunting and interminable days of expensive medical care and treatment.

Lori Oberson, legal guardian of Brian, and Kimberlee Musselman, natural mother of Brian's daughter Devon Musselman, brought this suit against the United States of America pursuant to the Federal Tort Claims Act, 28 U.S.C. § 2671, et Beg. alleging negligence on the part of the United States for failing to correct or warn of an allegedly dangerous trail condition on the groomed snowmobile trail where Musselman was injured.

A bench trial was held January 7-15, 2001. After considering the evidence and testimony submitted at trial, along with the parties' arguments and proposed findings of facts and conclusions of law, I find the following parties negligent: Brian Musselman, 10%; Jamie Leinberger, 50%; U.S. Forest Service, 40%. I find that Brian Musselman was damaged in the amount of **$11,296,800** and that Devon Musselman was damaged in the amount of $600,000.

My decision is based on the following Findings of Fact and Conclusions of Law.

II. FINDINGS OF FACT

5. On Saturday, February 24, 1996, the group rented snowmobiles from Westgate Station in West Yellowstone, Montana. Vol. I 118:1-4. The group then split up into smaller groups, with most members snowmobiling in Yellowstone National Park. There is no evidence that any of the group members rode the Big Sky Trail or the accident site on Saturday the 24th.

8. The group gathered later in the evening to travel to Eino's, a restaurant approximately 8½ miles north of West Yellowstone. The men rode their snowmobiles to Eino's, while the women took a shuttle. Vol. IV 150:7-12. It was dark when the snowmobilers left West Yellowstone for Eino's. Vol. I 122:12-22.

9. Musselman, Johnson and Kalahar rode together to Eino' s via a groomed snowmobile trail managed by the U.S. Forest Service, the Big Sky Trail. Vol. I 47:23-51:21. The trail crosses Cougar Creek just south of the accident site. This crossing forced the snowmobilers to ride their machines onto the highway shoulder at this point. Musselman, Kalahar and Leinberger stayed on the shoulder of the highway for the short distance remaining to Eino's and completely bypassed the accident site. Vol. I 48:8-18, 49:20-50:3, 51:11-52:2. Musselman, Johnson & Kalahar were riding competitively on the way to Eino's at speeds in the low 50s to upper 60s. Vol. I 73:1-75:151 76:11-121 77:7.

10. At Eino’s the three men joined their group, which numbered about 20. They cooked steaks, drank beer and told stories. Vol. I 53:20-54:20.

11. At about 10:00 p.m., the group left Eino’s. Musselman and Johnson were the first to leave on their machines, followed by Kalahar and Leinberger, among others. Vol. I 56:24- 7:22. They left Eino’s, crossed Highway 191, entered the Big Sky Trail and proceeded southbound toward West Yellowstone, Montana. Vol. I 157:25-158:9. No one in the party had ever traveled this portion of the trail between Eino’s and Cougar Creek.

12. Leaving Eino’s, riders cross the highway, then come to a stop before climbing the highway cut to get to the trail system. They then turn and ride between a fence and the highway to where Duck Creek crosses the trail. Riders then get up on the highway, stop, cross the road culvert and drop back down. They then climb up a plowed road with another stop sign, cross the plowed road, and follow the trail, which is flat, smooth, and essentially parallel to the highway, for about a quarter of a mile until they get to the accident site. Vol. I 215:21-217:17i Vol. III (ML), 797:13- 798:9j Ex. 1004.

13. According to Johnson, he and Musselman took off, and then Musselman "sped away," and Johnson lost sight of him. Vol.I 131:1-5. Johnson

testified that his machine accelerated more slowly than Musselman's, and that he "backed off" his speed initially because his visibility was reduced by the snowdust from Musselman's machine. Vol. I 131:7-132:12. Johnson then resumed his speed. Vol. I 131:22-24. Although he does not recall his exact speed, he testified that the 440 Polaris he was riding was capable of going in the mid-50s. Vol. I 118:5-12. He also testified credibly that he was in control of his snowmobile. Vol. I 139:13-20.

14. The accident occurred about 1 3/4 miles south of Eino's. Ex. 1004 (map). Johnson testified that he did not slow down as he approached the hill because he didn't know it was there. Vol. I 139: 9-12. He testified that he was "going along and all of a sudden, like I say, the bottom dropped out and I remember going through the air. I hit the ground pretty hard, it knocked the wind out of me. And I coasted up the trail through some thicket there and ended up next to the highway. It Vol. I 135:15-19.

15. Forest Service law enforcement officers were notified of the accident at 10:30 p.m. Vol. II 454:12-455:4.

17. The West Yellowstone trail system is "very well-signed." Vol. II 287:16. The trails are signed with stop signs, "stop ahead” signs, and speed limit signs, as well signs warning of hazards identified by the Forest Service in its "warranting" process, junction signs informing people that the trail will be changing, and "reassurance markers” that tell nighttime riders they are still on the trail. Ex. 1004 (map); Vol. II 424:20-25. If the trail goes through a gate, the gate posts are signed with "object open” markers so that snowmobilers don't hit a post that may be buried in the snow. Vol. II 426:8-13.

18. The hill precipitously drops 17 feet over approximately 80 feet. Vol. II 273:23. This equates to an 11.5 degree pitch, Vol. III 581:12} or a 25 percent slope.

19. The last quarter-mile of the trail heading south toward the accident site is primarily straight} flat and groomed} with no significant curves. Vol. I 135:11-13} 199:3-15. Kalahar described it as "pure flat, flat-running, very smooth". Vol. I 58:24-25. The trail had just been groomed that night. Vol. II 415:11-14.

20. Musselman negotiated the hill on his snowmobile and landed safely just west of the trail at the bottom of the hill. Ex. 28. Johnson was next over the hill, and his sled crashed, although he did not fall off of his sled. Musselman got off of his sled, perhaps to assist Johnson or warn the coming riders, and began walking or running back across the trail. Vol. V 99:17-100:4; 108:17-109:10. At that instant, Kalahar and Leinberger came flying over the hill side by side. One of them hit Mussselman in the head, causing catastrophic brain injuries.

21. Kalahar's snowmobile became airborne as he crested the hill. Vol. I 61:9-1l. Kalahar was going faster than Leinberger and flew past him in the air. Vol. I 97:5-1l. He clamped on the brakes, which caused his skis to tilt down, but he could not control the sled because he was not on the ground, and crashed. Vol. I 62: 7-13. He was not injured} but his sled was damaged. Vol I 62:17-63:2.

A. Accident Investigation

26. Forest Service law enforcement officers Mark Reinking and Terry Smith arrived at the scene shortly after the accident. Reinking, a law enforcement officer for the Idaho Panhandle National Forest on two-week special detail to the Hebgen Lake District, was in charge of the initial investigation. He prepared and submitted the official Forest Service Report of Investigation which documents the investigative efforts and findings. Ex. 28.

27. Although Officers Smith and Reinking were on the scene shortly after the accident, the investigation was poorly conducted. Officer Smith took notes that night, but has since lost them. Vol. II 456:11-15. They took only two photographs of the scene that night, but no photographs of any of the individuals involved, and no measurements that night. They did not secure the area to prevent the snowmobiles from being moved. Vol. II 503:12-16. They did not interview any witnesses that night, or if they did, they have lost their notes of the interviews and have no independent recollection of what was said. They ordered a blood sample drawn from Brian Musselman but left it in a refrigerator for three days rendering it useless. Vol. IV 100:7-102:3. They did not order blood drawn from Kalahar, Leinberger or Johnson. They did not return to Eino's to interview witnesses about the party's alcohol consumption or behavior. Vol. II 535:20-536:1.

28. In fairness to the officers involved, they had just returned from investigating an avalanche fatality when they received the call about the Musselman accident. Vol. II 509:8-13. Undoubtedly they were tired. Nonetheless, the lack of evidence from the scene of the accident has made subsequent determination of what occurred that night far more complex than it otherwise would have been.

29. In addition, Officer Reinking testified that he contacted the Forest Service claims department early on in the investigation because of comments he overheard at the accident site about the lack of signing at the hill. Vol. II 512:2-515:23. In fact, Reinking met with Forest Service claims agent Mickey McCorkle to go over his final report prior to filing it. Vol. II 517:20-518:2. In the end, the Forest Service investigation provides no answer to the question of who hit Musselman. Nonetheless, this type of "cooperative report," reflecting the Forest Service's awareness of the potential legal issues that might arise

because of the accident and Musselman's catastrophic injuries, affects my perception of the investigative report's reliability.

B. Injuries

42. Based upon the testimony of Kalahari Leinberger and Johnson, as well as expert testimony, I find it most likely that Musselman was first over the hill and landed his snowmobile without injury to himself or damage to his machine. Johnson came over the hill next, probably going 50-55 mph landed hard and headed away from the accident site towards the highway. Musselman then got off his machine, either to find out how Johnson was or to warn the coming riders of the steep hill, when he was hit by a snowmobile driven by either Kalahar or Leinberger.

C. Alcohol

57. Plaintiffs' human factors expert Robert Kennedy also expressed his opinion that alcohol did not impair Brian Musselman that night. Vol. 111601:21-22. He based his reasoning on Finkle's report. Vol. III 603:20-24. He testified that a blood alcohol of .03 to .06 would not affect a person's ability to perceive the slope of the approaching hill. Vol. III 604:1-18. I find this testimony credible and persuasive. (Pg. 26 Decision)

D. Speed

62. The Forest Service was aware as early as 1990 that high-speed riding-in excess of 60 mph-was taking place on the trails around West Yellowstone. Vol. I 204:24-205:22; Vol. III 673:11-19. In fact, that was one of the primary reasons the Forest Service created the initial warranting process. Vol. I 202:15-24, 203:15-17, 204:24-206:1.

63. The Forest Service is aware that the type of trails that encourage speed are straight, smooth, flat stretches. Vol. I 204:2-23/ 214:13-215:7. The Forest Service is also aware that well-groomed trails are conducive to higher speeds. Vol. I 204:21-23. The snowmobile trail maps indicated the days and times when trails would be groomed, and a recording at the groomer shed provided the same information tom callers. Vol. II 416:2-21. The Forest Service also knows that curves in a trail tend to reduce speed. Vol. II 364:2-4.

65. The testimony about Musselman's speed is much different. I find that he took off from Eino's quickly, and was riding fast enough to stay in front of everyone else. However, I also find that the evidence supports a finding that he was not going more than 45 mph as he came over the hill. That speed, while shown by the trial proof to be unsafe, is the speed limit posted by the Forest Service for this trail.

66. Richard Hermance, Plaintiffs' accident reconstruction expert, plotted the trajectory of a snowmobile coming over the hill at various speeds. Ex. 519; Vol. II 292:10-293:9. His projections were confirmed by the distances traveled by Forest Service employees attempting to recreate the accident. Vol. II 292:25-293:5. Hermance concluded that Musselman was probably going about 40-45 mph as he came over the hill. Vol. II 306:12-307:12. Even Defendant’s expert XXXXXXX testified that Musselman could have been traveling less than 35 mph. Vol. VI 137:18-138:16.

E. The Hill

68. The hill over which the accident took place drops 17 feet over a 75- to 80-foot distance. Vol. II 273:14-23. This equates to an 11.5 degree grade! Vol. III 581:12, or a 25 percent slope. Vol. VI 42:25-43:1. The Forest Service planned on reducing the grade of the hill prior to the accident. Vol. I 241:12-243:1. As of the date of trial! It had not yet

done so because of this lawsuit, but intends to once the case is over. Vol. I 245:17-25.

69. The trail runs directly parallel to Highway 191. Vol. I 216:5-24, 218:11-18. About a quarter mile north of the accident site, the trail and the highway are at the same elevation. Approaching Cougar Creek, both begin to drop in elevation. The road drops over a longer distance than the trail; therefore, the grade of the trail is much steeper than the grade of the road. The trail and highway converge again at Cougar Creek. Vol. III 799:22-800:13.

70. At the time of the accident there was no sign warning of the upcoming hill or telling riders to slow down. The posted speed limit was 45 mph. The speed limit was implemented in January 1996, a month before Musselman's accident. Ex. 18. It was the first time the Forest Service had ever placed a speed limit on the West Yellowstone trails. Vol. II 420:7- 13.

72. Even Forest Service witnesses confirmed the steepness and surprise of this hill. Officer Robert Morton rode over the hill the day after the accident at varying speeds. He testified that going over the hill at 50 mph "was a rush," and that he wouldn't want to do it again. Vol. III 777:11- 778:11. Officer John Walker testified that based on his experience patrolling the West Yellowstone trail system, he could not recall seeing such an abrupt hill anywhere else on the groomed portion of the trails. Vol. III (ML) 785:25-787:8. Forest Service technician Ron Naber, who has ridden the entire 130 miles of the groomed West Yellowstone trail system every year for a number of years, said he is not aware of another hill on the system with a more abrupt slope that is not posted with a warning sign. Vol. II 414:5-415:7.

73. The government presented two witnesses who testified that the hill was manageable at 45 mph. I find the testimony of these two witnesses is not

persuasive because of their interest in the case as well as the totally different circumstances of their experience riding over this hill as contrasted with the circumstances of the accident. I am more persuaded by the evidence presented by the government's videotaped reenactment, discussed next, and expert testimony interpreting that video.

F. The Forest Service Video

75. Richard Hermance, Plaintiffs' safety and reconstruction expert, is a certified snowmobile safety instructor, a technical advisor to the New York State Department of Parks and Recreation, a member of the New York State Snowmobile Safety Coordinating Group, a diplomat of the American Board of Forensic Examiners, a fellow of the College of the American Board of Forensic Examiners, consulted on the New York State Trail Design Manual, and has conducted extensive testing of snowmobile handling factors, including coefficients of friction, deceleration properties, acceleration properties and handling characteristics. Vol. II 267:9-271:15; Ex. 126. He has worked closely with numerous private and governmental entities dealing with snowmobile safety considerations. The United States has previously retained Hermance's services in the areas of snowmobile accident reconstruction and snowmobile safety, including the investigation of a snowmobile fatality near Yellowstone National Park. I found his testimony credible.

76. Hermance testified that the hill is a dangerous condition. The danger is proved in part by the Forest Service video showing a snowmobile leaving the ground, the skis starting to flail, and the rider losing control of the machine at 35 mph, 10 mph below the posted speed limit. Vol. II 277:3-14 Hermance testified that when a snowmobile leaves the ground "you can't steer the snowmobile, you can't brake the snowmobile, you can' t accelerate the snowmobile, your buttocks comes off the seat and

you go from having one center of mass to having two centers of mass interacting with each other, those being the snowmobile and the body." Vol. II 276:15-20. Because the rider in the Forest Service video was aware that the hill was coming, he prepared for it and was able to maintain control of the machine. Vol. II 278:21-22.

77. Hermance provided credible testimony that the sole factor determining whether a snowmobile will leave the ground going Vol. II 297:23-302:8. Whether the rider is accelerating or braking is irrelevant - what counts is the speed of the machine at the time it crests the hill. As shown by the government's own video, if the speed is 45 mph or greater, the machine will lift 2-3 feet off of the ground. Vol. II 279:1-9.

78. The Forest Service riders were aware the hill was coming, and were therefore able to prepare for it. Even Hermance testified, "I wouldn't mind going over that at 50 miles an hour if I knew it was coming; it would probably be fun. But to get it in the middle of night, when you're not ready for it, is a big deal." Vol. II 328:5-11.

79. Earl Applekamp, a Forest Service employee and expert for the government, stated that after he was asked to testify in this case, he went to the scene and rode the trail on a snowmobile. Vol. V 230:23-231:1. After driving over the accident site between 35-45 mph during day and nighttime conditions, he concluded the hill could be safely negotiated. Vol. V 227:9-22, 228:21-229:2. I find Applekamp's testimony regarding the warranting process credible, but I find his testimony regarding negotiation of the hill to be biased, unpersuasive, and discounted by the government's own video showing the sleds leaving the ground slightly at 35 mph, and markedly at 45 mph, and the fact that he was aware of the hill and could prepare for it.

80. I find the government's videotape and Hermance's explanation of it highly persuasive of the danger of this hill at speed of 45 mph and

higher, especially when ridden at night by a person unaware of its approach. The Forest Service rider was aware of the approaching hill and nonetheless became airborne. I find it wholly credible that riders unfamiliar with the terrain would similarly become airborne, but would have a much more difficult time reacting because of the shock and surprise of the event. No one in the Musselman party had traveled this section of the trail prior to the accident; thus, no one had notice of the hill, and no one could prepare for it.

G. Expectancy and Reaction

82. Robert S. Kennedy was plaintiffs' human factors specialist. Dr. Kennedy is a certified human factors professional who has authored or co-authored more than 400 scientific and technical publications addressing night vision, visual motion perception, response/reaction time, postural equilibrium and balance, and the effects of alcohol on human performance. Dr. Kennedy has received numerous commendations for his work in human factors, including awards and grants from Aerospace Medical Association and the United States Navy. Dr. Kennedy’s expertise in human factors includes many years of service to the U.S. Navy an NASA working with naval aviators and, astronauts involving performance testing and human factors engineering. In specific reference to the effect of alcohol on human performance, he is a committee member of the International Counsel on Alcohol, Drugs and Traffic Safety; a member of the Behavioral Toxicology Society; and has taught and been frequently published on the subject. Vol. III 567:1-570:17; Ex . 12 9 .

83. I found Dr. Kennedy's testimony regarding riders' expectations of an approaching slope and ability to react credible and persuasive. I specifically found his testimony that the surrounding terrain, which is level, would create an expectation that the upcoming hill is going to be a gentle slope rather than the steep slope and precipitous drop it actually is.

84. Kennedy conducted tests at the accident site to determine what the riders were able to observe from the trail. Vol. III 570:20-571:6. He testified that a pitch of up to 4 degrees would be gentle, and expected in the absence of a sign. Vol. 111581:10-11. The slope herein is 11.5

degrees, which Kennedy described as "substantial." Vol. III 581:11-12. According to Kennedy, a rider traveling 35 mph has a reaction time of 1.6 seconds, and therefore needs a distance of 82.2 feet to react. Vol. III 586:24-587:5. As he explained, "you could stand at the crest of the hill and look down the hill. But if people are operating moving vehicles, the decision to not go over that hill or in what way to go over that hill has to be made at some significant distance back from where that crest is." Vol. III 581:4-8. According to Kennedy, headlights will show the crest about 150 feet before the hill, with black beyond. Vol. III 581:22-582:3. But importantly, what a rider sees 150 feet before the crest is the same whether the grade of the hill is 4 degrees or 11.5 degrees. Vol. III 582:4-9.

85. Moreover, if the rider expects a typical slope of 4 or even 6 degrees, an 11.5 degree slope becomes very steep because it is so unexpected. Vol. III 582:17-583:10.

86. Hermance testified that the first sensation a rider would have as his snowmobile left the ground would be of "the bottom dropping out./1 Vol. II 280.13-14. This is confirmed by various witnesses who testified that this is what they felt going over this hill. See supra. Vertical velocity is 32 feet per second squared. Vol. II 280:22-23. Thus, it would take about a second for a snowmobile to drop the 17 feet grade of this hill. rd. As explained by Hermance, "with the time this person can even really understand what's going on, they're going to slam down on the ground already.” Vol. II 280:15-16.

87. Government expert Earl Applekamp drove about 80 miles of the trails in preparation for his testimony, and rode this hill at night as well as during the day at various speeds. He testified that as he approached the hill at night, he could see that the illuminated snow turned to black. He could also see the trees and brush beyond the hill; so, as a prudent driver, he slowed down to determine the grade of the hill. Vol. VI 58:16-59:10. The difficulty I have with his testimony as well as other government testimony regarding the safety of this hill is that it overlooks the fact that a rider who knows the hill is coming can prepare for it. Applekamp's testimony does not establish any objective facts about the expectations or reaction time of a nighttime rider unfamiliar with the terrain. It simply establishes that a rider who knows the hill is coming can safely negotiate it, which weighs more in favor of the plaintiffs' claim that a warning sign is needed.

H. Need for a Sign

88. The riders in the Musselman party had been riding the West Yellowstone and Yellowstone National Park trails for two days prior to this accident. If those systems included other hills like this one, and those hill were not signed, their expectancy would be that there could be more hills like this one. Vol. II 315:3-6. However, there were no other hills like this on the groomed portion of the trails system that were not signed. Vol. II 414:5-415:7i Vol. III (ML) 785:25- 787:8.

91. Snowmobile signing standards are established by the agency in charge of signing. Vol. II 286:20-25. There is no uniform guideline. Vol. II 322:9-24. What is most important, according to Hermance, is consistency within the particular trail system. Vol. II 287:6-10. As he explained, "If a person rides and they see nice, groomed trails and they see signs for hazards, you have to make sure that all of the hazards are signed." Vol. II 287:8-10.

94. By maintaining the trail as a highly groomed straightaway, the Forest Service made a hazard when it created an expectation that either the grade would not change drastically or a sign would warn users of a sudden change in grade. In fact, the straightaway encouraged riders to ride fast. The fact that Leinberger, Kalahar, and Johnson were traveling 5-10 mph faster than the posted speed limit was completely foreseeable.

M. Necessity For Warning

121. Shortly after the accident herein, Forest Service recreation technician Ron Naber placed a yellow caution sign warning of "dips ahead" at the approach to the hill. Ex. 530; Vol. II 362:8-364:10. Eventually, the Forest Service reconfigured the approach to the hill! changing it from a flat straightaway to a curving trail through the trees. Vol. II 364:2-7. It then placed two signs at the approach to the hill - one warning of the curve ahead, and a second warning of the downhill. This proof impeaches the assertion that a warning sign is not required at the site.

122. Richard Hermance, Plaintiffs' snowmobile safety and accident reconstruction expert, testified that this hill was a hazard because a snowmobile would leave the ground at 35 mph. He testified that a rider on this trail in this trail system would expect to be warned of a hill so steep that one becomes airborne below the speed limit. Finally, he testified that any sign cautioning riders of the hill ahead would have been adequate. Vol. II 339:9-340:23.

The Clerk of Court shall notify the parties of the making of this Order.

DATED this 23rd day of January, 2004.

Donald W. Molloy, Chief Judge
United States District Court

(This is an excerpt of the original Decision, which consists of a total of 106 pages.)