

Permanent

**ACCIDENT INVESTIGATION REPORT NARRATIVE**

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NOTIFICATION

On Friday, September 5, 2003, at approximately 12:03 p.m., the Division of Occupational Safety and Health, Permanent Amusement Ride Unit, Anaheim District Office ("The Division") received a phone call from Disneyland Resort employee Bill Gonser, Manager QA/ Compliance Process Facilities, Engineering and Construction, reporting that a serious accident and possible fatality had occurred on Friday, September 5, 2003 at approximately 11:18 a.m. The accident was reported to have occurred on an attraction known as the Big Thunder Mountain Railroad, located at Disneyland Resort, 1313 S. Harbor Blvd., Anaheim, California.

SUMMARY OF ACCIDENT

On September 5, 2003, at approximately 10:30 a.m. and 50 minutes before the accident, Big Thunder Mountain train #2 was removed from the staging area and added to the operation fleet of 2 vehicles, bringing the total number of trains on the ride to three. Train #2 completed 12 trips around the ride track before the accident, and at some point during these cycles several cast members noticed a noise coming from train #2. Shortly before the accident, most likely during the twelfth cycle, one of the retaining bolts of train #2's left side floating axle upstop/guide wheel assembly became detached from the axle. As the vehicle entered the final zone before the station, the other bolt became detached, allowing the upstop/guide wheel assembly to fall unnoticed into the track below at track tie #166.2. Train #2 then entered the station and was boarded by patrons for the next cycle.

Permanent

**ACCIDENT INVESTIGATION REPORT NARRATIVE**

Temporary

1	At approximately 11:17 a.m. train #2 was dispatched with approximately 24 patrons on board.	1
2	The train continued normally around the track until approximately one third of the ride's length,	2
3	when it exited a right banked curve into safety brake zone 1. The floating axle assembly, no	3
4	longer properly guided by its left upstop/guide wheel, shifted to the left and dropped down to a	4
5	lower position. This further destabilized the floating axle, and the additional motion broke one	5
6	of its connecting rods, which fell to the ground below the track. The remaining upstop/guide	6
7	wheel impacted a tie at approximately track tie #48.4. The train continued into safety brake	7
8	zone 1, an uphill grade through a tunnel, with the floating axle partially detached underneath	8
9	the locomotive.	9
10		10
11		11
12	The train continued into safety brake zone 1 while the floating axle continued to bounce on the	12
13	track equipment under the locomotive. At approximately track tie #52, the locomotive's floating	13
14	axle assembly collided with brake zone 1's safety brake #1 at the lower portion of the hill,	14
15	damaging the brake and its lining. Also damaged was the brake sensor, which caused the ride	15
16	control system to perform an "automatic dispatch inhibit," a normal response to an unknown	16
17	sensor problem. The automatic dispatch inhibit assured that no more trains were dispatched	17
18	from the station.	18
19		19
20		20
21	At approximately track tie #54.6 the floating axle assembly wedged itself between a track tie,	21
22	part of the locomotive, and a fixed brake. This combination of rearward and upward force	22
23	derailed the locomotive rear axle assembly from the track. Because of the normal uplift from	23
24	the hill and the towbar angle, the rear of the locomotive was pushed upward and the	24
25	locomotive attained a nose-low, tail high position. This was the first of what would be	25
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Permanent

**ACCIDENT INVESTIGATION REPORT NARRATIVE**

Temporary

1	three impacts. The trim brake speed sensor was then damaged as the train proceeded	1
2	further, causing the ride control system to issue a "trim brake #1 controller fault."	2
3		3
4	At approximately track tie #55.3 the front of the locomotive in its low nose position collided with	4
5	the last brake in safety brake 1. This sheared the brake from its mounts, caused the failure of	5
6	the locomotive's towbar, and further drove car #1 underneath the locomotive, wedging the	6
7	locomotive between car #1 and the top of the tunnel. This impact substantially damaged the	7
8	first two seat positions of the first car, resulting in the fatal injuries to the passenger in the right	8
9	front seat. This impact also derailed the second passenger car's rear axle, causing the second	9
10	passenger car to jackknife upward in the rear. This was the second of three impacts.	10
11		11
12		12
13	At this point, the train continued forward with car #1 underneath the locomotive and passenger	13
14	car #2 jackknifed in a nose low position. Passenger car #2 then impacted another one of the	14
15	track brakes at track tie #55. This was the last of three impacts and the train's forward motion	15
16	ended shortly after this impact.	16
17		17
18	With the kinetic energy of the accident expended, the train began to coast backward down the	18
19	incline until it was arrested by safety brake #1, and came to a complete stop at track tie # 54.	19
20	The locomotive, no longer attached to passenger car #1, remained at the top of the hill.	20
21	Passenger car #2's rear axle, derailed on the way up the hill, was further damaged by track	21
22	and track equipment as the train coasted back down the hill. Ride control sensor 1S sensed	22
23	the train's presence out of sequence, and issued an "automatic emergency stop" as a	23
24	response. All further motion on the ride was halted by the automatic emergency stop.	24
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

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ATTRACTION DESCRIPTION

The Big Thunder Mountain Railroad attraction was manufactured by Walt Disney World Co. in September, 1979. The attraction is a roller coaster style ride with a height requirement of 40 inches and a track length of 2,671 feet. The track is of a tri-rail design, with two load rails, a third rail or "backbone", and three chain lifts. The track is divided into six zones, and each zone is sealed and air pressurized. Pneumatically activated and spring-released fin brakes slow or stop the trains, and linear induction motors use a brake fin to accelerate or decelerate the train. The Big Thunder Mountain Railroad has six trains, which can operate with up to five trains at any given time. One train consists of one locomotive (9 feet 9 inches) and five railroad-style cars or passenger-carrying devices, each of which can carry up to 9 passengers, connected together at a length of 66 feet by a tow bar and two cables. Each car has 3 bench seats with a lap bar at each seat. Each car running gear consists of front and rear axle assemblies, each of which contains two bogie assemblies. The running gear for the locomotive consists of a front axle, guide, and upstop assembly, a floating axle assembly, and a rear axle assembly. The floating axle is non-weight bearing and contributes to the theme appearance of the locomotive. Each of the floating axle's upstop/guide wheels are retained by two bolts with safety wire backup. Trains can be dispatched at a minimum interval of 42 seconds, with a ride speed of 41 feet per second and a ride duration of 3 minutes, 15 seconds.

Permanent

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Temporary

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INVESTIGATION NARRATIVE

At approximately 12:03 p.m., Friday, September 5, 2003, the Division's Principal Engineer Al Tafazoli advised me that the office had received a report from Disneyland Resort that a serious injury had occurred at its location at 1313 S. Harbor Blvd., Anaheim, on the Big Thunder Mountain Railroad attraction. At approximately 12:05 p.m. the same day, at Mr. Tafazoli's direction, I went to the Disneyland Resort to start the Division's investigation. At approximately 12:20 p.m. the same day I arrived at the Disneyland security gate and was met by Bill Doherty, Manager, Quality Assurance Facilities, Engineering and Construction for the Disneyland Resort. I was escorted to the Big Thunder Mountain Railroad attraction where I was met by Anaheim Police Department representatives Lieutenant Rodig and Detective Clapper. I was informed at this time that the area had been secured by the Anaheim Police Department, that there was one fatality (Marcello Torres), that six injured people had been transported to UCI Medical Center, and that two other injured people had been transported to Western Medical Center via ambulances. Documentation reveals that the Anaheim Fire Department received a call from Disney at 11:20 a.m., advising of a serious injury and the need for emergency response.

At this time I was met by Rich Langhorst, Vice President of Attractions, Engineering and Risk Management; Dave Milligan, Guest Safety Manager; and Betty Appleton, Director of Risk Management, all employed by Disneyland Resort. I held an opening conference, during which the above-mentioned Disneyland personnel provided me with a basic account of the accident.

Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

1 At this time I was escorted to the attraction by Detective Clapper and James Conley, Forensic 1  
2 Services Supervisor, Detective Division, both with the Anaheim Police Department. I was 2  
3 taken to the accident scene, which was located in a tunnel (safety brake zone 1) within the Big 3  
4 Thunder Mountain Railroad attraction. As I entered the tunnel I saw a locomotive (train #2), 4  
5 which was partially on the track, with one wheel lying in front of the locomotive. As I 5  
6 proceeded to the rear of train #2, I noticed that the locomotive was separated from the 6  
7 remaining five cars at a distance of approximately thirty-five feet, and numerous parts of the 7  
8 train and brakes were scattered around the tunnel. I also saw the deceased lying on the 8  
9 ground next to the first car. I was informed that the deceased had been removed from the 9  
10 front right side seat of car#1 for medical attention. I noticed that the second car was partially 10  
11 on the track. I also noticed that the top of the locomotive roof had been damaged. At this time 11  
12 Mr. Conley started to take photographs and a video of the accident scene as we waited for the 12  
13 Coroner. After the deceased was removed from the scene the Anaheim Police Department 13  
14 released the attraction to DOSH. At this time I requested that Mr. Milligan secure the accident 14  
15 scene and permit access to authorized personnel only. He complied with my request and 15  
16 offered to provide whatever other assistance he could. I began to walk the entire track of the 16  
17 attraction and observed miscellaneous hardware and parts of the train along and around the 17  
18 tracks path. I also noticed a complete upstop/guide wheel assembly from a floating axle lying 18  
19 below the track in brake zone #4 on the left hand side of the third track rail. I left the 19  
20 Disneyland Resort that day at approximately 7:30 p.m. 20  
21  
22  
23  
24 I returned to Disneyland Resort on Saturday, September 6, 2003, at 8:00 a.m., and was met 24  
25 by Mr. Milligan, Mr. Doherty, and Randy Tamme, Quality Engineer with the Disneyland Resort. 25  
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

1	We arrived at the Big Thunder Mountain attraction and were met there by Emmett Peter,	1
2	Director of Global Safety for Walt Disney Parks and Resorts, and Jerry Billings, Principal	2
3	Engineer, Design Assurance, employed by Disneyland Resort. We began the day by walking	3
4	the track and initiated a procedure of cataloging all parts around the track area. (1) We listed	4
5	each part found, and referenced it to the nearest track tie and the third rail of the track. At the	5
6	conclusion of the day's inspection, the Division requested the following items for review:	6
7	maintenance manual, operation guidelines, training materials for all operator and maintenance	7
8	personnel that worked on the Big Thunder Mountain Railroad attraction on the day of the	8
9	accident, PLC print out, security phone log, maintenance training manual, all maintenance	9
10	PM's for one month prior to and including September 5, 2003, operations daily opening check	10
11	list for the day of the accident, maintenance opening slip for the day of the accident, drawing of	11
12	the train and track, and owner/operator policies and procedures. I requested to interview as	12
13	soon as possible all Disneyland employees who were working on the Big Thunder Mountain	13
14	attraction on the day of the accident. I left the Disneyland Resort that day at 2:30 p.m.	14
15		15
16		16
17	I returned to the Disneyland Resort on Monday, September 8, 2003, at 10:00 a.m. and was	17
18	met by Mr. Gonser. Brian Taylor, an associate safety engineer with the Division, arrived at	18
19	Disneyland at the same time to act as my assistant for investigation of the Big Thunder	19
20	Mountain Railroad attraction. I directed Mr. Taylor to continue cataloging all parts found along	20
21	and around the track of the attraction. He was joined by Mr. Peter and Mr. Billings. I then	21
22	interviewed the following Disneyland Ride Operation cast members: Dave Levy, Heather	22
23	Nelson, Bryan Fowler, Jeff Wheeler, Erin Drew, Joe Mcgee, and Randolph Grant.	23
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

1	All were working at various positions on the Big Thunder Mountain attraction on the day of the	1
2	accident. During the course of these interviews, several of those interviewed stated that they	2
3	heard a noise coming from train #2 prior to the accident. They could not identify exactly when	3
4	during the 12 and one third cycles preceding the accident they began to hear the noise. They	4
5	also stated that the noise did not seem to be a major concern, but during the thirteenth cycle,	5
6	while the train was in operation with passengers on board, they had decided to remove train	6
7	#2 from service for an inspection to determine the source of the noise. The accident occurred	7
8	before the train finished the cycle. After conducting the interviews I went to the Big Thunder	8
9	Mountain attraction to visually examine train #2 and the parts that were found along and	9
10	around the track. I examined the upstop/guide wheel that was found near brake zone 4 and	10
11	noticed that the wheel assembly and its two mounting holes were in good condition. During	11
12	the cataloging process, I examined the two cap screws (bolts) along with the washers that	12
13	were used to secure the upstop/guide wheel assembly to the floating axle. This hardware was	13
14	in such unaltered condition that it appeared not to have been tightened according to	14
15	specifications. We looked for but were unable to locate any safety wire for the wheel	15
16	assembly. Mr. Taylor and I left Disneyland Resort that day at 5:00 p.m.	16
17		17
18		18
19	I returned to Disneyland Resort with Mr. Taylor at 7:00 a.m. on Tuesday, September 9, 2003,	19
20	and was met by Mr. Gonser. Mr. Taylor went to the Big Thunder Mountain attraction to	20
21	perform a visual inspection of the the track, while I conducted interviews of Mike Wheat and	21
22	Kevin Conception, both employed by Disneyland Resort in the Ride Operation Department. I	22
23	also interviewed Eric Lopez, Roy Wright, Gary Colman, Casey White, Roland Bronk, and	23
24	Gabriel Adriano, all Outside Machinists employed by Disneyland and assigned to the	24
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

1	Big Thunder Mountain Railroad. During the interviews we went over each work order	1
2	completed for that week, and according to the employees interviewed all preventive	2
3	maintenance work had been completed. Questions were asked in regards to the daily paper	3
4	work process, which focused primarily on the Green and Yellow Tag procedure. The process	4
5	of using a Green or Yellow tag consists of the following: A Green Tag is used only when all	5
6	preventive maintenance work is completed and the passenger-carrying device is ready for	6
7	operation with patrons. The Green Tag is good for 72 hrs, which means that the passenger-	7
8	carrying device can be used within 72 hours of the Preventive Maintenance work being	8
9	completed. If the 72-hour period expires before the passenger-carrying device is placed back	9
10	into service, then the passenger-carrying device must be reinspected. The Yellow Tag is only	10
11	used to identify a passenger-carrying device taken out of service so that maintenance can be	11
12	performed on it. The Yellow Tag must remain on the device until all Preventive Maintenance	12
13	work has been completed and the device is ready to be Green-Tagged and placed back into	13
14	service.	14
15		15
16		16
17	I directed questions to the outside machinists to determine how well they understood the	17
18	Yellow and Green Tag procedure, and their responses consistently demonstrated an	18
19	inadequate understanding of the procedure. Mr. Taylor and I left Disneyland Resort that day	19
20	at 4:00 p.m.	20
21		21
22		22
23	Mr. Taylor and I returned to Disneyland at 8:00 a.m. on Wednesday September 10, 2003, and	23
24	were met by Mr. Gonser. Mr. Taylor continued inspection of the track and the accident scene,	24
25	while I interviewed the following Disneyland employees:	25
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

1	Maintenance Electrician Kevin Relock and Outside Machinists Jose Leon, Ean Sanchez, and	1
2	Kevin Molina. I also interviewed John Pitcher, Larry Langston, Johnny Mar, and Rick	2
3	Stephenson, all three of whom are Assistant Managers with the Disneyland Resort's West	3
4	Reliability Team. The last person interviewed that day was Jerry Meirowsky, Facility One	4
5	Assistant Manager. It appeared from the interviews and documentation that Mr. Mar signed	5
6	the Attraction Sign-Off Card for The Big Thunder Mountain Railroad attraction on the day of	6
7	the accident, Friday, September 5, 2003. The West Reliability Team Assistant Managers	7
8	stated that on occasion, they signed off on paperwork without fully reviewing it. The interviews	8
9	with the Outside Machinists on this day resulted in statements similar to those made by the	9
10	Outside Machinists interviewed on September 9, 2003, i.e, they demonstrated a consistent	10
11	misunderstanding about when to use a Green Tag versus a Yellow Tag. They stated that all	11
12	of the safety related items were being completed, but also stated that they were short handed.	12
13	One Outside Machinist had been removed from The Big Thunder Mountain Railroad attraction	13
14	rotation prior to the date of the accident, and had not been replaced as of the date of the	14
15	accident. I did not interview him.	15
16		16
17		17
18	At the conclusion of my interviews I proceeded to the Big Thunder Mountain Railroad attraction	18
19	to join Mr. Taylor in the inspection of the track and accident scene. I also conducted a	19
20	telephone interview with Ryan McCaroll, who had telephoned the Division office earlier to	20
21	inform the Division that he was on a Big Thunder Mountain train at the time of the accident.	21
22	He stated in my interview that he was on train #6, which stopped in brake zone #4 at the time	22
23	of the accident and was among those evacuated from that area. Mr. McCaroll also stated that	23
24	the train he was on was making noise. Mr. Taylor and I left Disneyland that day at 4:00 p.m.	24
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

1 Mr. Taylor and I returned to Disneyland Resort at 7:00 a.m. on Thursday, September 11, 2003, 1  
2 and were met by Mr. Gonser. For the next two days, Mr. Taylor and I inspected completely 2  
3 Big Thunder Mountain Trains #1, #3, #4, and #6. Mr. Tamme joined us for these inspections. 3  
4 At the conclusion of the two days of inspection it appeared that all trains inspected had been 4  
5 maintained according to specifications. Mr. Taylor and I left Disneyland on Friday, September 5  
6 12, 2003 at 4:00 p.m. 6  
7  
8  
9 I arrived back at Disneyland along with Mr. Taylor at 10:00 a.m. on Monday, September 15, 8  
10 2003 and we were met by Mr. Gonser. We started to review all of the documentation the 9  
11 Division had requested of Disneyland Resort. This review of documentation continued for the 10  
12 following days: September 16, 17, 18, 19, and 22. Through the course of the documentation 11  
13 review it appeared that the Disneyland Resort did not have a clear instruction as to what a 12  
14 Ride Operator is expected to do in the event an unusual noise is detected. I brought this issue 13  
15 to the attention of Disneyland management. It also appears that the Outside Machinists did 14  
16 not use the proper procedure for issuing a Green or Yellow tag on train #2 on the last occasion 15  
17 prior to the accident that the preventive maintenance was performed and completed. I also 16  
18 brought this to the attention of Disneyland management. I was informed that Disneyland 17  
19 management would begin to take action immediately to address these issues. I concluded 18  
20 during this review that the Outside Machinist who had replaced the upstop/guide wheel on the 19  
21 left side of the floating axle on train #2 signed off on the paperwork stating that the assembly 20  
22 was tightened to specifications and that safety wire was applied. I also concluded that the 21  
23 West Reliability Team Assistant Managers did not always adequately perform their role in 22  
24 assuring that paperwork and administrative procedures were followed and completed properly 23  
25 and on time. 24  
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

1	On September 18, 2003, I performed a shop inspection, and inspected all corrective	1
2	maintenance work performed on trains #1, #3, #4, and #6 for the week prior to September 5,	2
3	2003. My inspection indicated that all corrective maintenance work on the trains listed above	3
4	was performed according to specifications at the time of inspection. Mr. Taylor and I left	4
5	Disneyland at 4:00 p.m.	5
6		6
7	I arrived at Disneyland along with Mr. Taylor at 7:00 a.m. on Tuesday, September 23, 2003	7
8	and we were met by Mr. Gonser. Mr. Taylor and I conducted a second interview with the	8
9	following Disneyland Resort Outside Machinists: Gabriel Adriano, Casey White, Ean Sanchez,	9
10	Gary Colman, Jose Leon, Roland Bronk, and Kevin Molina. I asked each of them about their	10
11	roles in and knowledge of the corrective maintenance work on train #2 that was performed on	11
12	the last occasion prior to the accident. Among other things, I asked them about the	12
13	upstop/guide wheel on the left side of the floating axle. I also asked specifically about how the	13
14	Yellow tag was issued on train #2 after the maintenance was performed. Their essentially	14
15	uniform response was that the work must have been completed because the paperwork had	15
16	been completed and signed.	16
17		17
18		18
19	In regards to the question concerning the use of the Yellow tag, the Outside Machinists could	19
20	not properly describe the proper way to use the Green and Yellow tag. After completing the	20
21	interviews Mr. Taylor and I continued to review documentation on the Big Thunder Mountain	21
22	Railroad attraction. Mr. Taylor and I left Disneyland at 4:00 p.m.	22
23		23
24		24
25	Mr. Taylor and I arrived back at Disneyland at 7:00 a.m. on Wednesday, September 24, 2003,	25
26	and were met by Mr. Gonser. Mr. Taylor and I spent the day at the Big Thunder Mountain	26

Permanent

**ACCIDENT INVESTIGATION REPORT NARRATIVE**

Temporary

1	Railroad attraction inspecting train #2 and the track in and around the tunnel. Parts were	1
2	gathered around the track and cataloged. Mr. Taylor and I left Disneyland at 4:00 p.m.	2
3		3
4	I returned to Disneyland along with Mr. Taylor at 7:00 a.m. on Thursday, September 25, 2003	4
5	and was met by Mr. Gonser. I directed Mr. Taylor to continue to review documentation. A	5
6	number of people were present who I was informed were representatives of the law firm of	6
7	Aitken Aitken & Cohn and were there to perform an inspection with the permission of the	7
8	Disneyland Resort. It was agreed that I would observe the inspection. Also present were Mr.	8
9	Milligan, Mr. Peter, and Mr. Platt. The inspection consisted of the following: a walk around the	9
10	track from the station to the accident location, visual inspection of the track and train #2 at the	10
11	accident location, and visual inspection of all catalogued parts. After the inspection was	11
12	completed, the Disneyland maintenance crew under my observation removed train #2 and all	12
13	associated parts from the accident scene to a secured site within Disneyland. At my request,	13
14	Disneyland sent several parts from train #2 for analysis to Fowler Inc., a Metallurgical Analysis,	14
15	Failure Analysis, and Experimental Testing firm. Mr. Taylor and I left Disneyland at 10:00 a.m.	15
16	September 26, 2003.	16
17		17
18		18
19	I returned to Disneyland Resort with Mr. Taylor at 8:30 A.M. on Tuesday, September 30, 2003	19
20	and was met by Mr. Gonser. Mr. Taylor and I proceeded to the Big Thunder Mountain	20
21	Railroad attraction to perform an inspection of the portion of track that had not been visible	21
22	prior to the removal of train #2. We also went to the secured site where train #2 and all parts	22
23	were being stored to perform our first inspection of the relocated train and parts. We both left	23
24	Disneyland at 4:30 p.m.	24
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

1	Mr. Taylor and I returned to Disneyland Resort at 7:00 a.m. on Wednesday, October 1, 2003	1
2	and were met by Mr. Gonser. We continued reviewing documentation, and I performed an	2
3	inspection of all operation stations and electrical and mechanical control rooms within the Big	3
4	Thunder Mountain Railroad attraction. Mr. Taylor and I left Disneyland Resort that day at 3:30	4
5	p.m.	5
6		6
7		7
8	Mr. Taylor and I returned to Disneyland Resort at 7:00 a.m. on Thursday, October 2, 2003, and	8
9	were met by Mr. Gonser. At this time, Mr. Gonser presented to me for my review, a proposed	9
10	enhancement to Disneyland Resort General Operating Guidelines that addressed what ride	10
11	operators are expected to do in the event an unusual noise is detected. I indicated my	11
12	approval of the enhancement, and I was informed that the change would be implemented and	12
13	communicated to all ride operators the same day. Mr. Taylor and I continued to review	13
14	documentation. We both left Disneyland at 4:00 p.m.	14
15		15
16	On Friday, October 3, 2003 at 7:00 a.m., Mr. Taylor and I arrived back at Disneyland where we	16
17	were met by Mr. Gonser. Mr. Taylor continued to review documentation, while I interviewed	17
18	the following Disneyland employees: Kevin Weiler, Manager Attraction, Reliability; Bert	18
19	Vaughn, West Reliability Team Manager; Gracia Albin, Ride Operator, and Destiny Danal,	19
20	Ride Operator. I asked Mr. Weiler and Mr. Vaughn whether they thought that there was	20
21	sufficient outside machinist staffing for adequate upkeep of the Big Thunder Mountain Railroad	21
22	attraction. They both stated that staffing had been adequate, even though the crew that	22
23	normally consisted of 7 had consisted of 6 at the time of the accident. In my review of the	23
24	duties of the outside machinists, I concluded that they were correct in their judgment.	24
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

1 I also asked them to describe how the Green and Yellow Tag process is meant to be carried 1  
2 out at Disneyland Resort, and both demonstrated by their responses that they understood the 2  
3 process. I asked Ms. Albin and Ms. Danal if they had heard any unusual noise coming from 3  
4 train # 2 prior to the accident. Ms. Albin stated that she did not recall hearing an unusual 4  
5 noise, but Ms. Danal stated that she recalled hearing a noise on train #2. I asked these 5  
6 questions of them because both had ridden train #2 to perform a show check according to 6  
7 standard procedure prior to the accident. Mr. Taylor and I left Disneyland at 4:00 p.m. 7  
8  
9  
10 On Monday, October 6, 2003, at approximately 11:40 a.m., I received a telephone call from 10  
11 Mr. Tafazoli instructing me to release train #2 and the track of the Big Thunder Mountain 11  
12 Railroad attraction back into Disneyland Resort's custody. At this time I telephoned Mr. 12  
13 Gonser and advised him accordingly. 13  
14  
15 Mr. Taylor and I returned to Disneyland Resort at 7:00 a.m. on Tuesday, October 7, 2003, and 15  
16 were met by Mr. Gonser. We began a documentation review that continued through the 16  
17 following days: October 8, 9, 15, 16, 17, and 21. During this time we reviewed the Anaheim 17  
18 Police Report (4) and the Coroner's Report ( 5) along with all the Disneyland Resort 18  
19 documentation gathered in the course of the investigation. Through this review I confirmed 19  
20 that the Big Thunder Mountain Railroad attraction had made twelve complete cycles before the 20  
21 accident occurred on the thirteenth cycle, and that there were twenty-four passengers on train 21  
22 #2 at the time of the accident. Upon completing this review I also concluded that, overall, the 22  
23 procedures for maintenance of the Big Thunder Mountain Railroad attraction, if followed, were 23  
24 generally more than adequate, although three areas, as outlined in the Conclusion section 24  
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

1	below, Items 4, 7, and 8 can be improved. I also performed various spot-checks on several	1
2	attractions to determine the state of compliance with the Green and Yellow tag and daily	2
3	maintenance paperwork procedures throughout the Disneyland Resort.	3
4		4
5	On Friday, October 10, 2003 the Division received a report from Fowler, Inc. which stated that	5
6	the two capscrews (bolts) used to attach the upstop/guide wheel assembly to the floating axle	6
7	had not been tightened to specifications, and that safety wire had not been used to complete	7
8	the wheel assembly attachment as specified by procedure. (2)	8
9		9
10		10
11	On Wednesday, November 12, 2003, I went to the offices of Aitken Aitken & Cohn in Santa	11
12	Ana to interview Vicente Gutierrez. Wylie Aitken was present during the interview. Mr.	12
13	Gutierrez stated that, at the time of the accident, he was seated in the first row, left hand side	13
14	of train #2 of the Big Thunder Mountain Railroad attraction, and the deceased was seated in	14
15	the same row next to him. Mr. Gutierrez further stated that he remembered boarding the train	15
16	with the deceased and having the ride operator check his lap bar. He also stated that he	16
17	heard a noise, the train went into a tunnel, and after that he could not remember what took	17
18	place. (3)	18
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**ACCIDENT INVESTIGATION REPORT NARRATIVE**

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CONCLUSION

The Division has completed its investigation of the Big Thunder Mountain Railroad attraction.

As a result of its investigation the Division has drawn the following conclusions:

1. The fatal injuries sustained by the deceased occurred when car #1 collided with the underside of the locomotive on train #2, as described in greater detail in the Summary of Accident above.

2. The accident was caused by a mechanical failure, which occurred as the result of omission during a maintenance procedure of two required actions: The left side upstop/guide wheel on the floating axle of the locomotive # 2 was not tightened in accordance with Disneyland Resort specifications for the procedure, and safety wire following tightening of the assembly was not installed.

3. There is no evidence that the design of the Big Thunder Mountain attraction is unsafe.

4. There was an inadequate instruction in the Operation Guidelines as to what a ride operator is expected to do when an unusual noise is detected.

5. Use of Green and Yellow Tags on train #2 was not carried out properly as required by Disneyland Resort procedure, and on a number of occasions, the West Reliability Team had not performed the procedure properly on other rides to which the Team was assigned.

Permanent

**ACCIDENT INVESTIGATION REPORT NARRATIVE**

Temporary

- |    |                                                                                           |    |
|----|-------------------------------------------------------------------------------------------|----|
| 1  | 6. As of the time of the accident, Disneyland Resort procedures allowed a car to be added | 1  |
| 2  | to the attraction without performing a test cycle with the added car.                     | 2  |
| 3  |                                                                                           | 3  |
| 4  | 7. An audit procedure which is part of the Disneyland Maintenance Operation Guideline     | 4  |
| 5  | was established on November 11, 2002, and was applicable to the Big Thunder Mountain      | 5  |
| 6  | attraction. However, the attraction was never subjected to this procedure.                | 6  |
| 7  |                                                                                           | 7  |
| 8  |                                                                                           | 8  |
| 9  | 8. As of the time of the accident, Disneyland Resort procedures allowed one outside       | 9  |
| 10 | machinist to sign for the work of another outside machinist to indicate completion.       | 10 |
| 11 |                                                                                           | 11 |
| 12 | 9. The emergency response of the employees and medical assistance after the accident      | 12 |
| 13 | occurred was proper, and assistance occurred as soon as possible.                         | 13 |
| 14 |                                                                                           | 14 |
| 15 | 10. Disneyland Resort properly secured and preserved the Big Thunder Mountain attraction  | 15 |
| 16 | and the secured site where train #2 was relocated throughout the Division's comprehensive | 16 |
| 17 | investigation.                                                                            | 17 |
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Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

Temporary

CORRECTIVE ACTION SPECIFICATIONS

The following are the corrective actions that shall be taken as a result of this investigation. In addition to complying with the corrective actions listed below, the Owner/Operator shall complete an inspection conducted by the Division of Occupational Safety and Health before the Big Thunder Mountain Railroad attraction is placed back into operation:

A. The Owner/Operator shall retrain all outside machinists assigned to the Big Thunder Mountain Railroad attraction at the time of the accident, on September 5, 2003, on company policy, procedures, and guidelines with respect to the performance of maintenance activities for which they have responsibility. (8 CCR Section 3195.6)

B. The Owner/Operator shall retrain all outside machinists assigned to the West Reliability Team at the time of the Big Thunder Mountain Railroad attraction accident on September 5, 2003, on company policy, procedures, and guidelines with respect to the performance of maintenance activities for which they have responsibility. (8 CCR Section 3195.6)

C. The Owner/Operator shall retrain all assistance managers assigned to the West Reliability Team at the time of The Big Thunder Mountain Railroad attraction accident, on September 5, 2003, on company policy, procedures, and guidelines with respect to the performance of maintenance activities for which they have responsibility. (8 CCR Section 3195.6)

**ACCIDENT INVESTIGATION REPORT NARRATIVE**

Permanent

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D. The Owner/Operator shall retrain all managers assigned to the West Reliability Team at the time of The Big Thunder Mountain Railroad attraction accident, on September 5, 2003, on company policy, procedures, and guidelines with respect to the performance of maintenance activities for which they have responsibility. (8 CCR Section 3195.6)

E. The subject matter of all training described in Items A through D above shall be approved by the Division of Occupational Safety and Health. (8 CCR Section 3195.6)

F. The Owner/Operator shall supplement its policy to include clear instructions to all ride operators as to what they are expected to do in the event an unusual noise is detected, and shall implement the new policy for all attractions at the Disneyland Resort. (Complied with on October 2, 2003.) (8 CCR Section 3195.6)

G. The Owner/Operator shall implement a policy of performing one test cycle on all cars of the Big Thunder Mountain Railroad attraction prior to carrying passengers. (8 CCR Section 344.7)

H. The Owner/Operator shall require that only outside machinists who actually perform the work can indicate by their signature that work has been performed. (8 CCR Section 3195.3(a)(3)(B))

Permanent

ACCIDENT INVESTIGATION REPORT NARRATIVE

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FOOTNOTES

- (1) The catalogue of parts is Item No. 1 in the File Evidence List.
- (2) The Fowler Report is Item No. 2 in the File Evidence List.
- (3) All tapes of witness interviews are listed collectively as Item No. 3 on the File Evidence List.
- (4) The Police Report is Item No. 4 in the File Evidence List.
- (5) The Coroner's Report is Item No. 5 in the File Evidence List.

Permanent

**ACCIDENT INVESTIGATION REPORT NARRATIVE**

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**EVIDENCE LIST**

- (1) Catalog of Parts
- (2) Fowler Inc. Report
- (3) Witness Tapes
- (4) Anaheim Police Report
- (5) Coroners Report
- Photographs
- Notes
- Pre-Opening Checklist
- Anaheim Police Phone Call from guest
- Attraction Sign Off Card
- Cast Member Statement
- Bio Dynamic Test
- Yellow Tag
- Disney Watch Report
- Patron List Train #2
- Accident Responder List
- Facilities (Cast Members) List
- Attraction (Cast Members) List
- Operation Assignment List
- Vehicle Operating Guidelines for 2004
- Drawing- Dock Big Thunder Mountain Railroad
- Drawing- Floating Axle Big Thunder Mountain Railroad
- Drawing- Tow Bar Big Thunder Mountain Railroad
- Drawing- Train Big Thunder Mountain Railroad
- Drawing- Track Rail Big Thunder Mountain Railroad
- Drawing- Track Course Big Thunder Mountain Railroad
- Maintenance Operating Guideline
- Operations Noise Policy
- Anaheim Police Log
- 911 Call
- Ambulance Log
- Fire Department Event Listing
- Big Thunder Mountain Railroad Ride Control Print Out
- Accident Location Map
- Attraction Lay Out Map
- Train Lay Out
- Accident Scene Lay Out
- Disneyland Work Order