

Commonwealth of
Massachusetts
Department of Public Safety
ACCIDENT REPORT



May 1, 2004

*Six Flags – New England, Agawam, MA
Superman Roller Coaster*

Investigating Inspectors

Thomas G. Gatzunis, Commissioner

Mark F. Mooney, Assistant Chief of Inspections

ACCIDENT / INCIDENT FACT SHEET

DATE AND TIME: May 1, 2004, 1500 hours

LOCATION: Six Flags-New England
Route 159, 1623 Main St,
P.O. Box 307
Agawam, MA 01001
413-786-9300

INJURED/DEAD:

OBJECT UNDER INVESTIGATION: Superman Ride of Steel roller coaster

MANUFACTURER: INTAMIN AG
Verenastrasse 37
P.O. Box 95, CH-8832
Wollerau, Switzerland
Phone: +41 1 786 91 11,
Fax: +41 1 785 02 02,
e-mail: info@intaminworldwide.com

WITNESSES: See supplemental investigation summary

INSPECTORS: Mark F. Mooney (lead inspector)
Thomas G. Gatzunis

LOCAL INVESTIGATING POLICE: Lt. Draghetti, Agawam Police Department

INCIDENT SUMMARY

On the above date and location, at approximately 1500 hours, as the Superman Ride of Steel roller coaster was approaching the final turn in the cycle, _____ of _____ was ejected from the front row seat of the coaster. As a result of the ejection, he struck the #6 support column (as identified on sketch #1) and was fatally injured.

Ride maintenance logs and operator logs were found to be in order. The overall condition of the ride was good, with no apparent mechanical defects. The seat belt restraints appeared to be in good condition with no signs of wear or mechanical failure. The "T" Bar hydraulic lap restraint appeared to be functioning as designed and showed no signs of leakage or damage.

ACCIDENT INVESTIGATION

On May 1, 2004 at approximately 1500 hours, a roller coaster accident occurred at Six Flags New England, 1623 Main Street, Agawam, Massachusetts. Within one hour, park officials (Scott Maupin) contacted the Massachusetts State Police of the incident pursuant to Massachusetts Regulation 520 CMR 5.00. A preliminary investigation was started by Mr. Mark F. Mooney, Assistant Chief of Inspections of the Massachusetts Department of Public Safety on May 1, 2004 at 1845 hours. Mr. Thomas G. Gatzunis, Commissioner of Public Safety, assisted during the investigation. The victim of the accident, _____ was given medical treatment on the scene and was later pronounced dead at _____, Massachusetts. The scene was secured by Agawam police department, who also interviewed the guests shortly after the incident.

Upon investigation it appears that the victim, _____ arrived at the Superman Coaster ride on a scooter/mobile chair (see photo#1). Several ride attendants were aware of _____ and his scooter/mobile chair and made reasonable accommodations to allow him to park his scooter where he then walked to the front seat of the coaster. Based on witness testimony, it appears that _____ was guided into his seat by a ride attendant, and entered the ride by himself. The ride attendant was "going to sit him in the 2nd or 3rd car" however due to his larger size, the attendant sat him in the front seat because "those cars have a larger seatbelt so he would not have any problems buckling". It was observed, after the accident, that the _____ s seat belt was still connected and latched. The position of the latching mechanism was pulled between the seat, and the side restraint. The ride photo (see photo #2) taken by an automatic camera on the coaster 10 to 20 seconds prior to the accident demonstrated that the seat belt was secured around

It appeared that upon his ejection from the seat, his foot caught the seatbelt and pulled

the belt into the final position (see attached photo #3). [redacted] s sock was also tangled with the seatbelt. One shoe was still in the car at the time of the investigation. This could have been knocked off by the lap restraint or the seat belt upon ejection. The second shoe was found on the ground near the point of ejection.

According to witness statements, during boarding, a second patron, Mr. Menard, was asked to move from his original seat to the seat in the 1st row next to the victim. This was also "because he was larger and could not fit into his seat belt", "standard procedure". It should be noted that measurements taken by Department of Public Safety Inspectors indicated that the front row of each car seat belts had eleven (11) extra inches to adjust compared to the seats in the second row because they are secured at different locations. Since Mr. Menard had already attempted to pull the "T" bar lap restraint forward, to move, the operator had to release the restraints from all passengers. Once Mr. Menard was in his new seat, the park procedure required ride attendants to check all the passengers seat belts and "T" bar restraints. The ride operator as well as several patrons provided statements as such, however there were some statements that indicated that the seatbelts were not pulled tight enough or the "T" bar lap restraints did not get pushed against the patrons firm enough.

[redacted] did not speak to anyone during boarding and remained quiet throughout the ride. Once the ride attendants did their checks, they signaled to the operator "all clear". The operator then started the ride and the coaster left the station.

As the ride was underway, the patron behind the victim, Ms. Faith Thomas, saw that [redacted] was "getting air" on some of the hills and grabbed his suspenders in an attempt to keep him in his seat. Mr. Menard indicated that [redacted] was leaning forward in the seat the entire duration of the ride. On approaching the final bunny hills, Mr. Menard noticed that [redacted] was coming out of his seat high enough to take notice. At the last bunny hill approaching the last turn,

“came up too much” and he began to fall out of the left side. Both Mr. Menard and Ms. Thomas attempted to hold onto _____ as the ride came into the last turn, however the forces applied on _____; body were too great for them to hold on and his body was quickly thrown from the ride. The maximum peak instantaneous negative value in that section of the ride was -0.4 G, and the maximum peak instantaneous positive value in that section of the ride was +2.9 G according to ride accelerometer data.

As _____ came out of his seat, the ride track begins to turn, which caused his body to move out of the car. As the coaster comes down the last bunny hill, the design of the track causes the coaster to pitch into the turn (see photo #4). At the point when _____ was exiting the coaster, and the coaster began to bank into the turn, his left hand landed on the left track of the coaster and the rear wheels of the 1st car struck his arm at his wrist, severing his hand. It should be noted that it is not physically possible for a hand to come in contact with the coaster wheels when a person is properly secured in the seat restraints. The severed hand struck a cross member on the coaster track before flying free from the track, landing 25 feet from the point of separation (see photo #5). Once _____ was clear of the coaster, his head and upper torso struck the #6 support column and he then traveled 31 feet (see photo #6) before striking the ground and traveling another 38 feet before striking a chain link fence bordering the property (see photo #7). At the time of this report, we do not have any conclusive evidence that _____ did or did not suffer any loss of consciousness prior to being ejected.

As the coaster came into the braking area, the ride operator and ride attendants were made aware of the incident and performed an “emergency stop” of the coaster.

Some patrons jumped a chain link security fence in an attempt to assist the victim. Park emergency response officials arrived on the scene and began to provide medical assistance until an ambulance

arrived. Park emergency response officials noticed that the victim had a "top to bottom" chest scar presumably from a prior medical surgery as well as severe bruising on both sides of his torso presumably as a result of the ejection. Additionally, the first responders noticed a medical alert tag on the victim. Due to the possibility of a pre-existing health condition that could have a significant influence as a contributing factor, the Department officials have requested the assistance from the Office of the Chief Medical Examiner in order to seek an autopsy of the victim. Complete results of the autopsy were not available at the time of this report.

Following the accident, the family indicated to the press that _____ suffered from cerebral palsy, which is a medical condition that affects the muscles of a part or side of the body, sometimes the entire body. Uncontrolled reflex movements and muscle tightness (spasticity) occur with varying severity. _____ was approximately 5'3" in height and weighted +225 pounds.

The hydraulic system of the "T" bar lap restraint was checked for proper function. The system appeared clean and free of leakage (see photo #8). The seatbelt system was also checked and mechanically functioned properly. Ride operational and maintenance logs were reviewed as well as the status of the Allen Bradley PLC, however, a printout of the PLC alarm log was not available at the time of the investigation (The system does not have a local printer set up), but has been requested.

Based on this preliminary investigation, the Department has identified the following **contributing factors**:

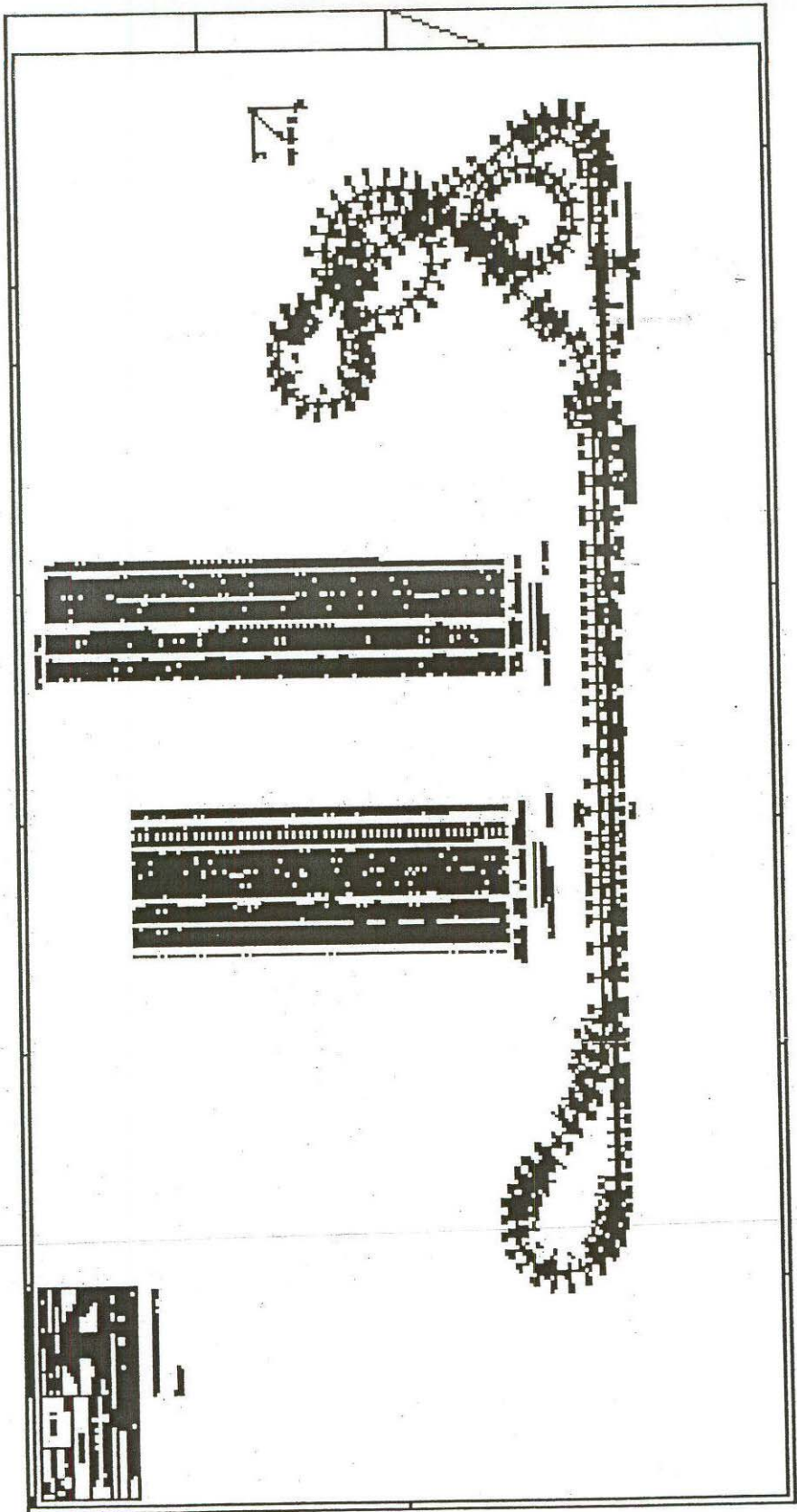
1. **Girth of the victim.** The girth of the victim's lower torso was incompatible with the "T" bar restraint. Based on photographic evidence, it appears that the victim's body configuration prevented the "T" bar restraint from being in a position that would adequately protect the patron from being ejected.

2. **Pre-existing medical condition.** Massachusetts regulations 520 CMR 5.03(6)(e) requires patrons to notify the ride operator of any pre-existing health conditions that may negatively effect the health and safety of the patron if they were to ride an amusement device. Based on witness testimony of ride operators, first responders and statements volunteered by his family to the press, [redacted] failed to notify the ride operator of his pre-existing medical conditions that should have prevented him from getting on the ride. (see photo #9 , #10)
3. **Varied Seat Belt Sizes.** The different sizes of seat belts enable people of unique size to enter the ride. This creates an opportunity for patrons, who may have a body size and type that is incompatible with the "T" bar restraint to ride the coaster, unaware of the potential hazard.
4. **Failure of ride attendant.** In order for the "T" bar restraint to work properly, it is necessary that the bar be positioned firm against the patron's upper thighs. In the case where individuals with large torso girth, the lower abdomen can interfere with the proper position of the "T" bar restraint. There was a failure of the ride attendant to properly identify that the restraints were inadequately applied. Had the ride attendant identified that the "T" bar lap restraint was not in a position necessary to protect the patron from ejection, the patron would have been removed from the ride.

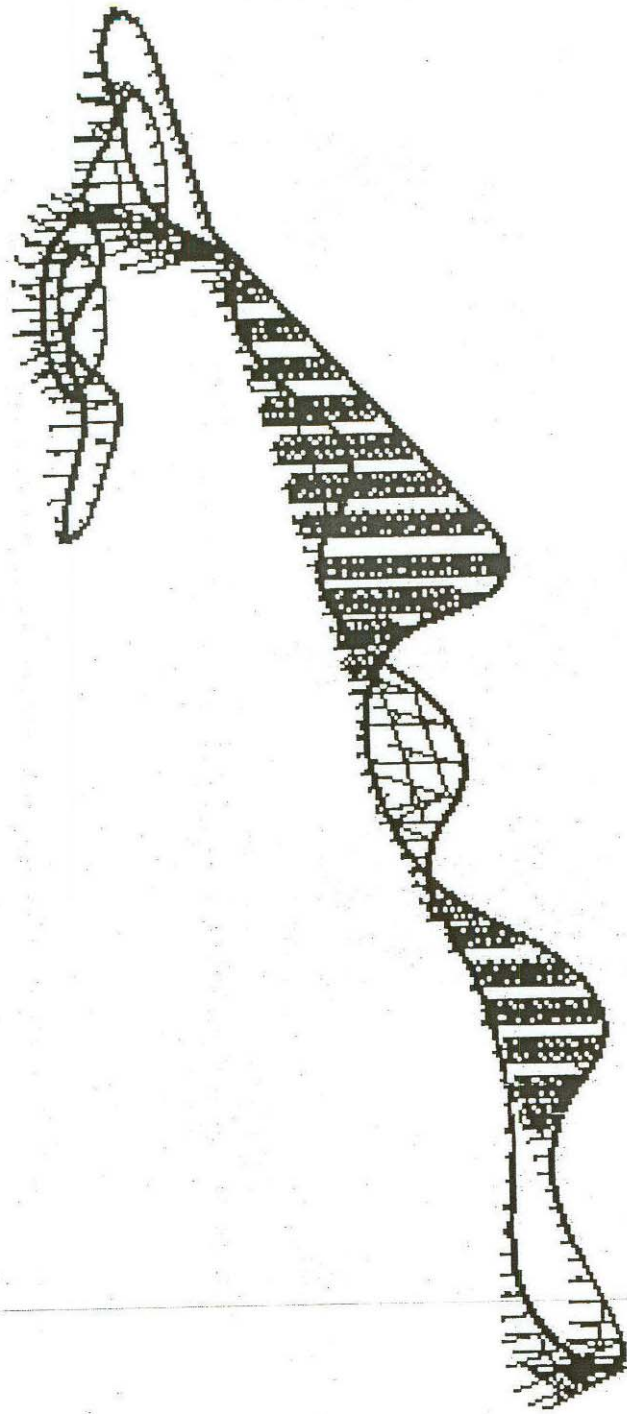
As stated earlier, due to the nature of the accident and possibility of a pre-existing health condition that could have a significant influence as a contributing factor, the Department officials requested the assistance from the Office of the Chief Medical Examiner in order to seek an autopsy of the victim. Complete results of autopsy were not available at the time of this report.

Following the investigation, the Department officials held a post-investigatory meeting with park officials to review what were identified as contributing factors and outline the steps the park had to take before being allowed to re-open the ride to the public.

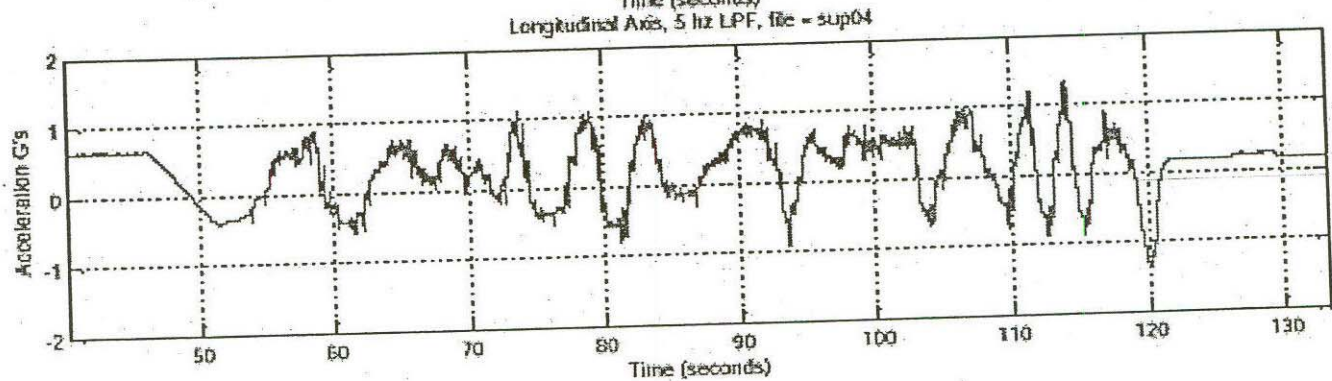
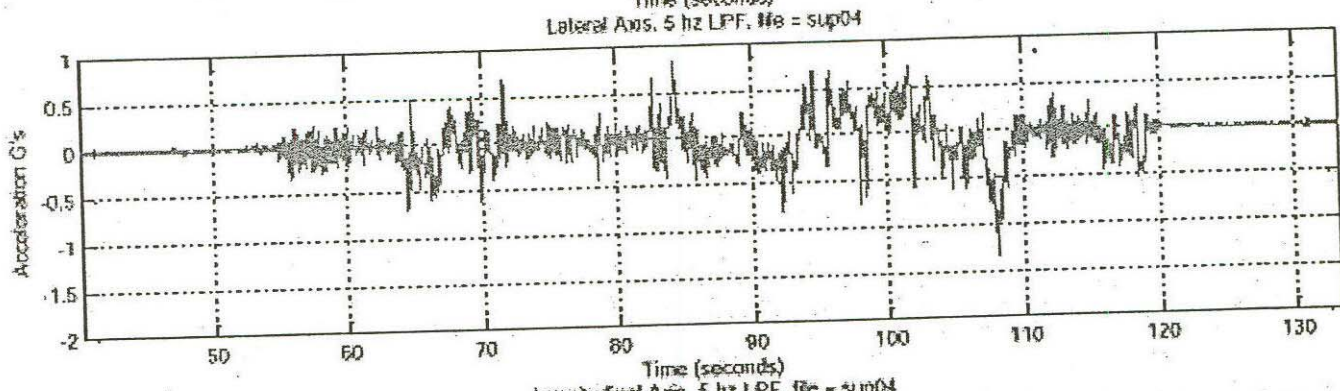
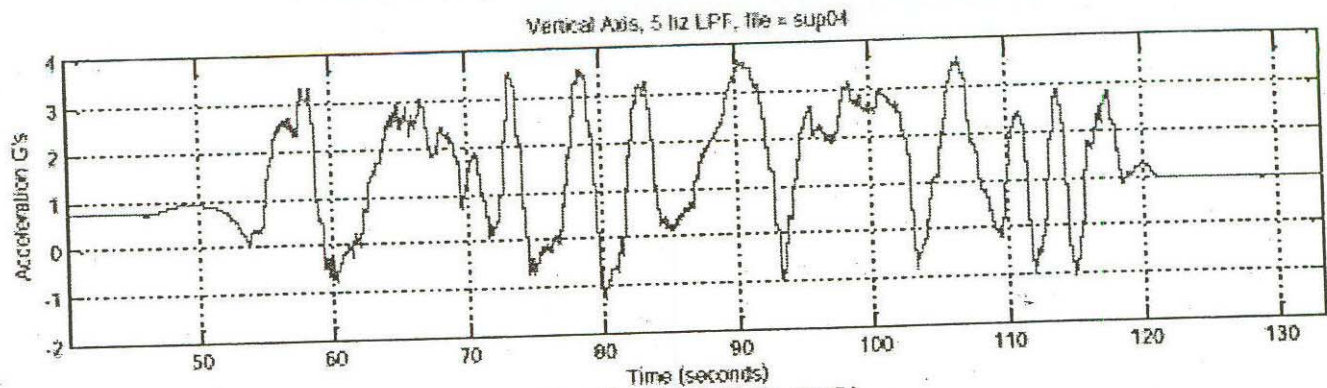
Pursuant to Massachusetts General Law chapter 140 section 205A, the ride shall remain closed until the operators and/or manufacturer implement a corrective action plan which is approved by Commissioner Gatzunis.



Superman Coaster Track Layout



Superman Roller Coaster - Isometric



Superman Coaster - Acceleration Data

This information represents forces measured in the front left seat of a fully loaded train along the entire circuit.

PHOTO LOG

Location: Six Flags – Agawam Date: May 4, 2004

Investigating Inspector: Thomas Gatzunis / Mark Mooney

Photo Number	Description
1	Mobile chair / scooter
2	Ride photo of victim
3	Ride seat belt restraint
4	Coaster track of bunny hill at final turn
5	Trajectory of severed hand
6	Trajectory of victim
7	Chain link fence
8	Hydraulic "T" Bar lap restraint
9	Park signage
10	Park signage
11	Location where victim struck the #6 support column
12	Approximate position of lap restraint at accident with ave. male
13	Location where hand was severed
14	Coaster car

Photo Log Sketch



Photo #1 - s mobile chair / scooter

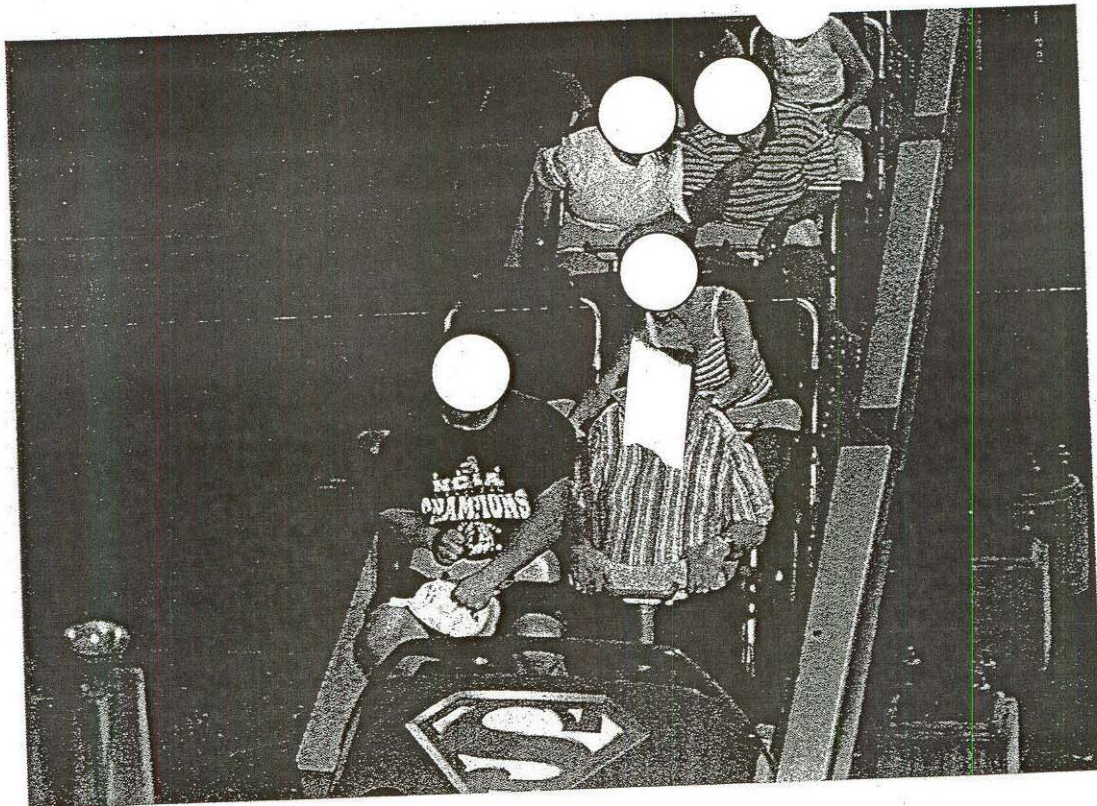
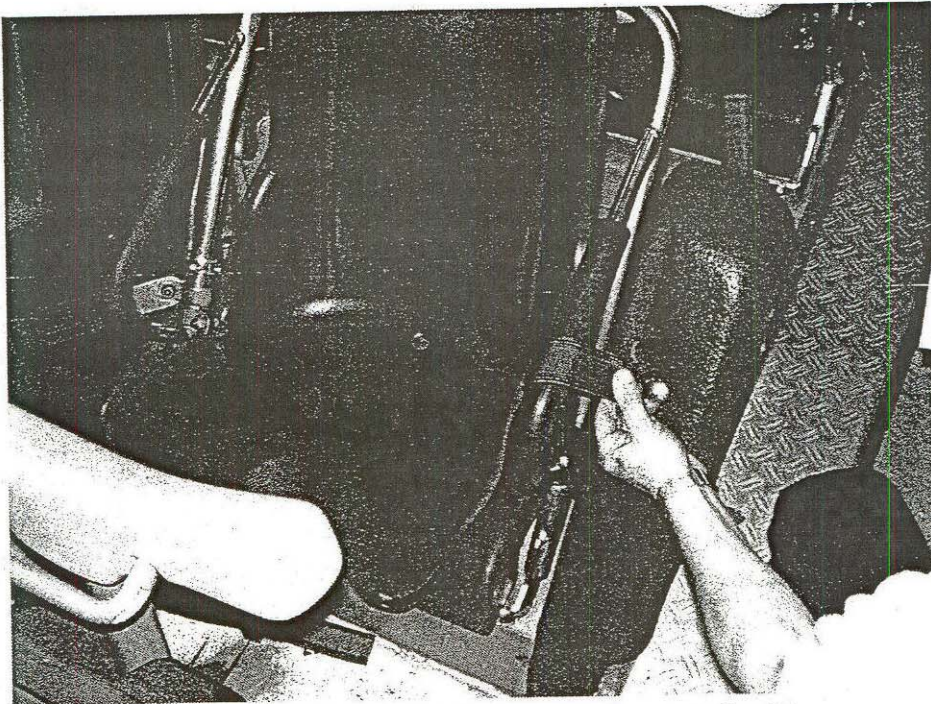


Photo #2 – Ride photo prior to accident



Photo #3 – Seat belt position following accident



**Photo #3(a) – Photo of seat belt
(end of strap in position during ride)**



Photo #4 – Photo of final bunny hill and turn

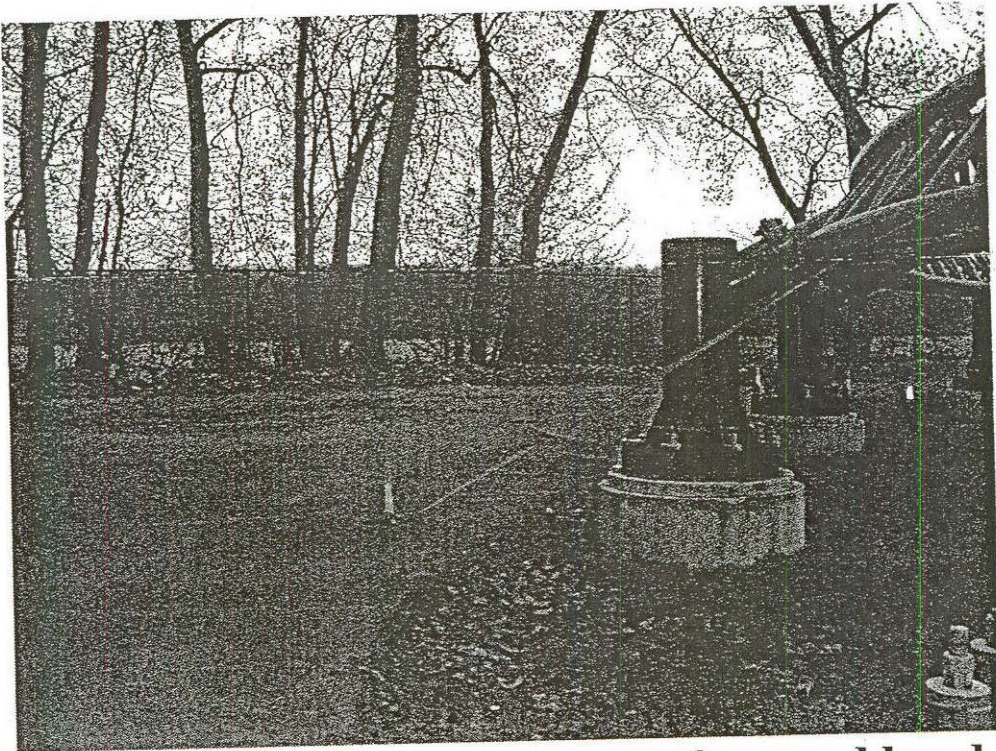


Photo #5 – Photo of trajectory of severed hand

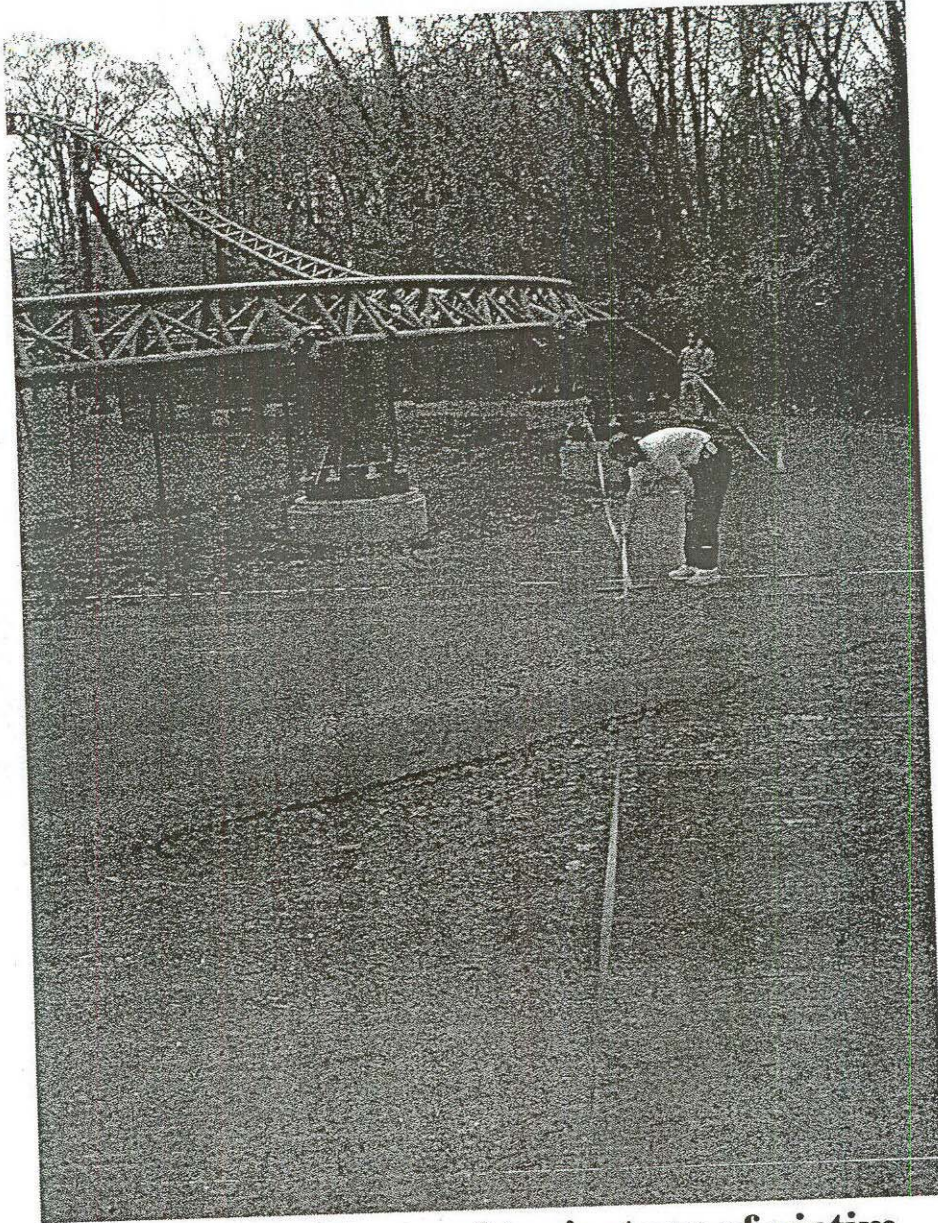


Photo #6 – Photo of trajectory of victim



Photo #7 – Photo of chain link fence where victim stopped

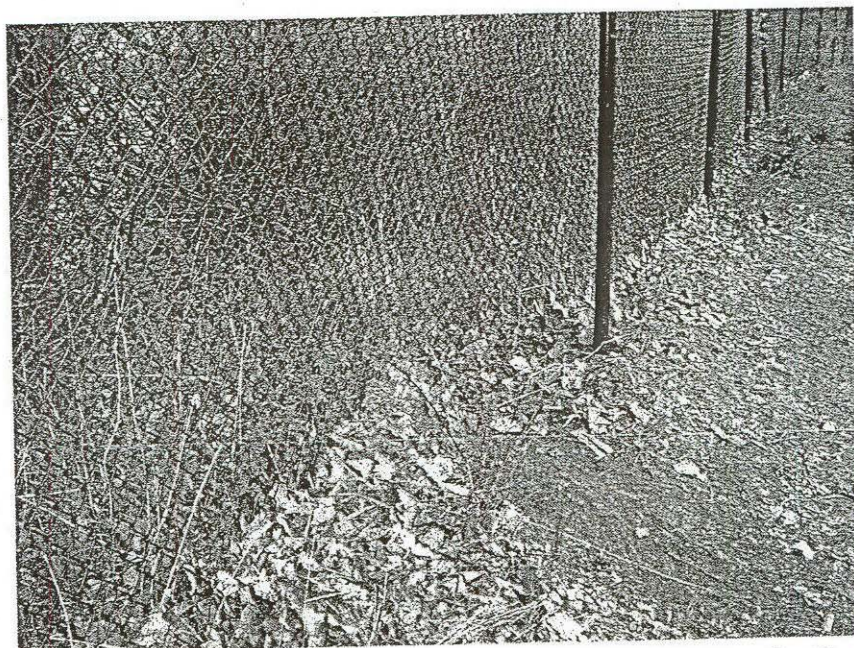


Photo #7a – Photo of chain link fence where victim stopped

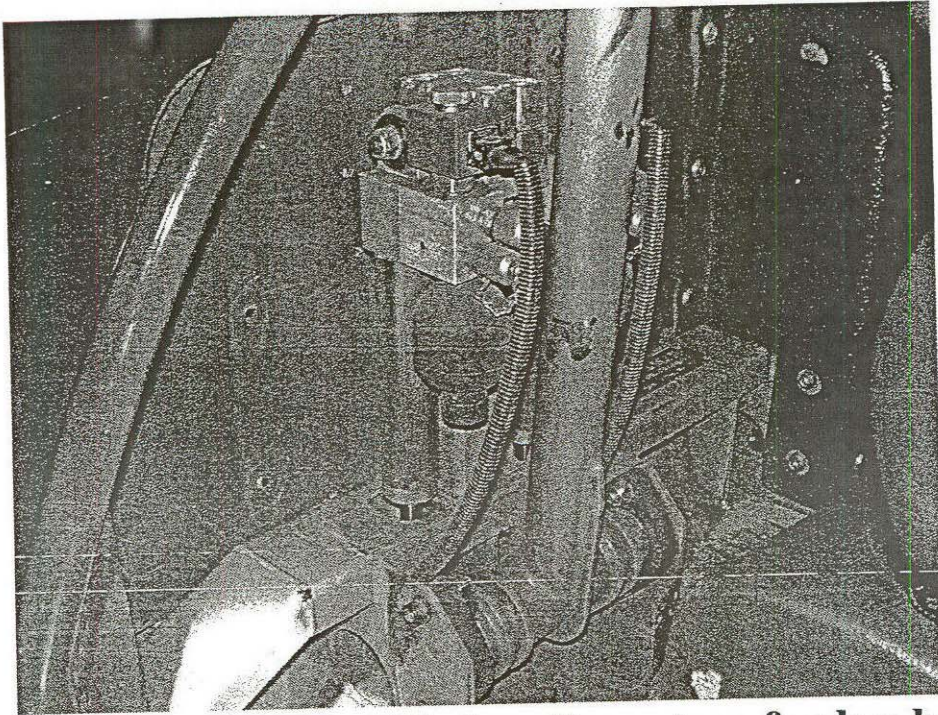


Photo #8 – Photo of Hydraulic system for lap bar

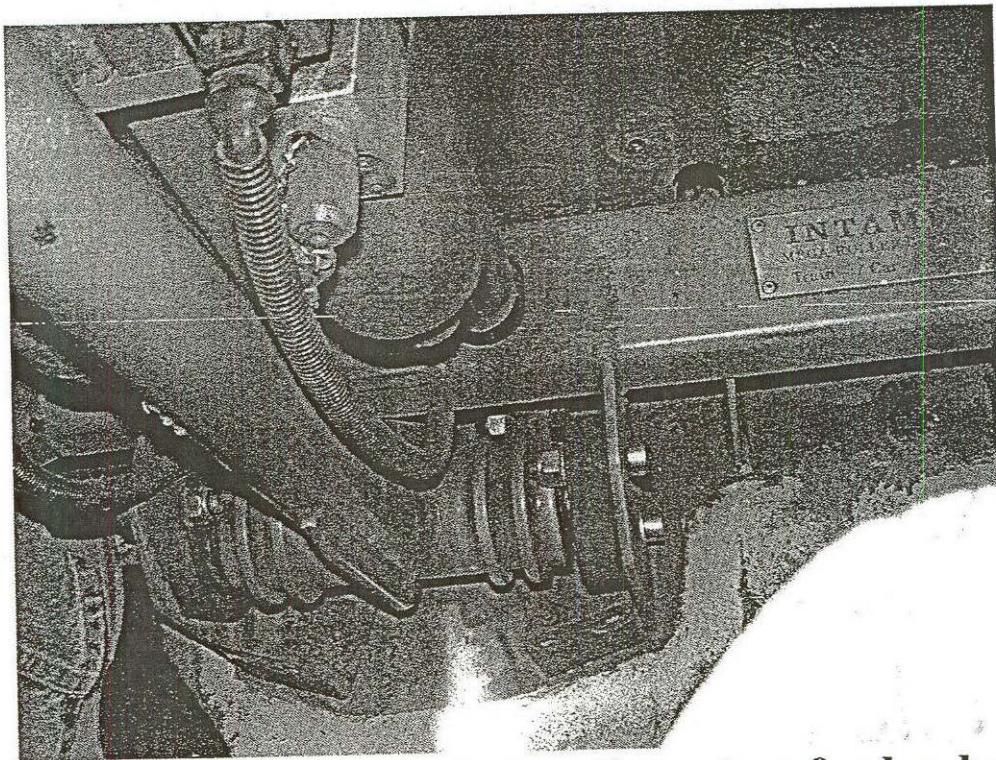


Photo #8a – Photo of Hydraulic system for lap bar



"An exciting roller coaster with high speed turns,
steep drops and sudden stops"

FOR YOUR PROTECTION, THIS ATTRACTION IS NOT RECOMMENDED FOR GUESTS WITH:



ATTENTION ALL GUESTS:

Read important safety information and follow
instructions of attendants

You must be 54" tall to ride. maximum height 78"

DO NOT RIDE IF YOU:

Have significant physical ailments or conditions

Have had back or neck problems

Have had high blood pressure, heart trouble or nervous disorders

Are an expectant mother

Are under the influence of drugs or alcohol

ALSO:

Photo #9 - Signage

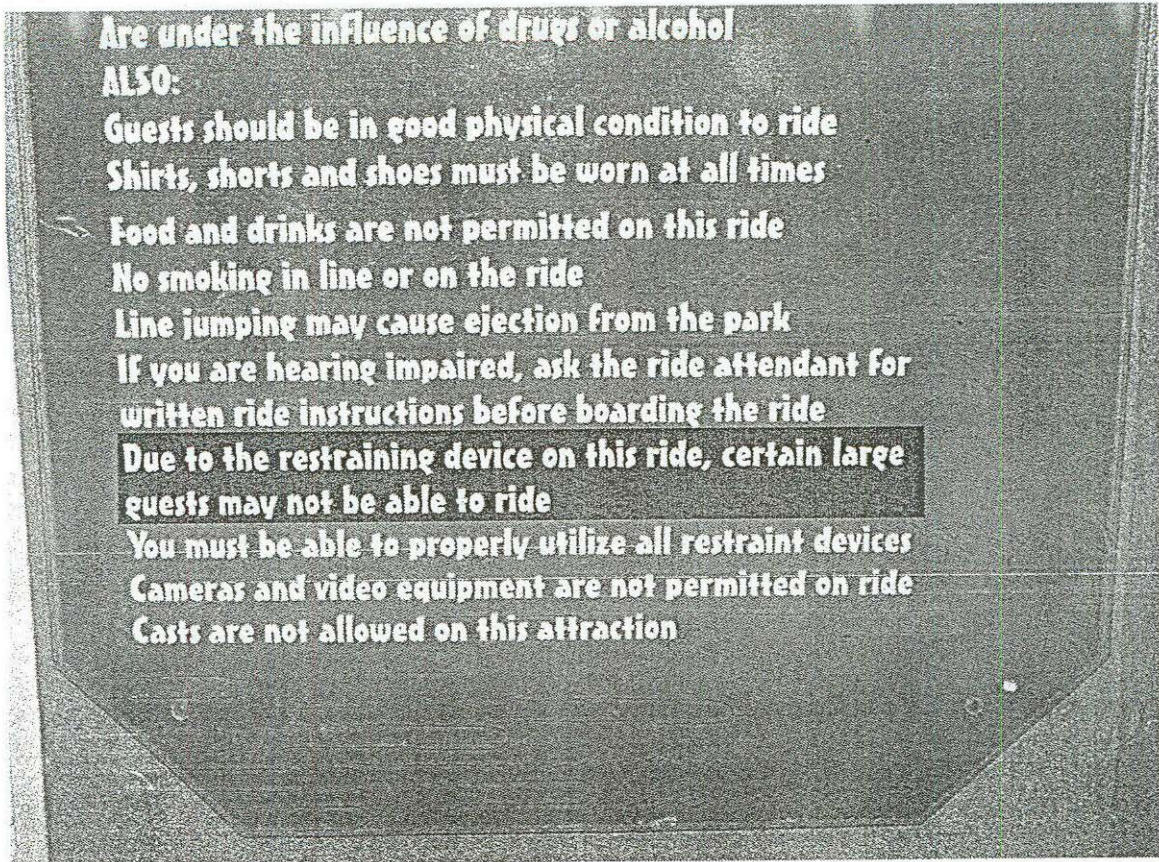


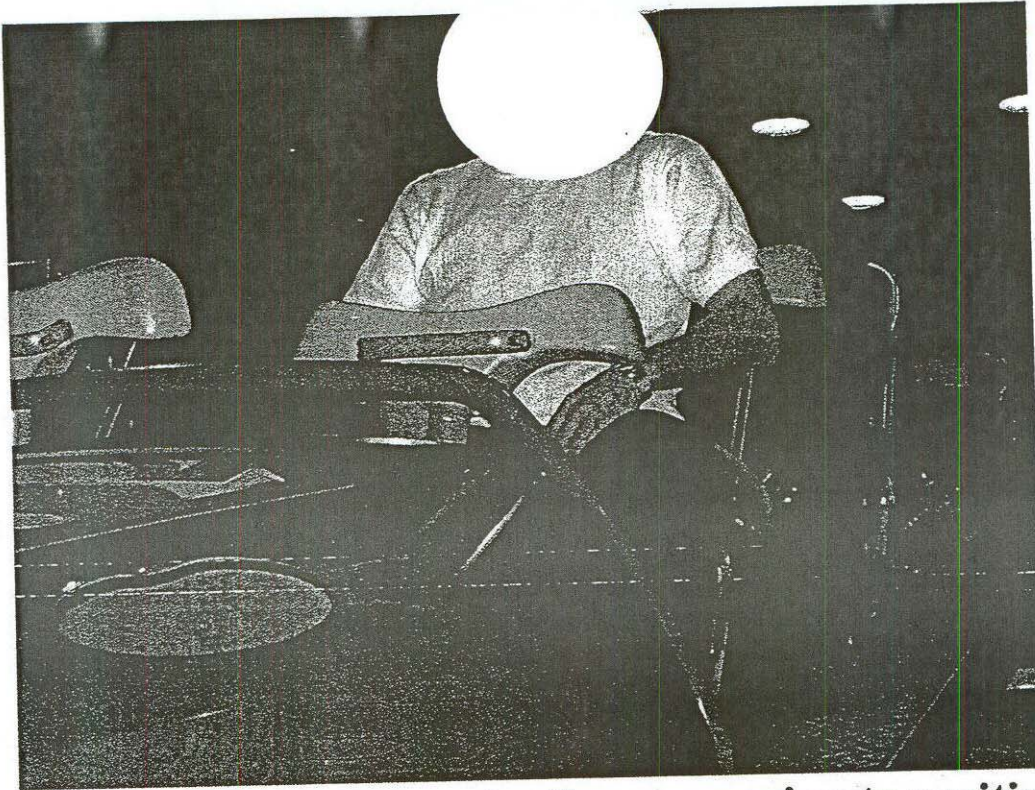
Photo #9a - Signage



Photo #10 – Large adult used in testing “T” bar restraint
(Could not come free when “T” bar restraint broke vertical plan of front of seat)



Photo #11 – Photo of location where victim struck #6 support column



**Photo #12 – Photo demonstrating approximate position of lap bar restraint in relation to average male.
(note excessive gap between restraint and legs)**



Photo #13 - Location where hand was severed

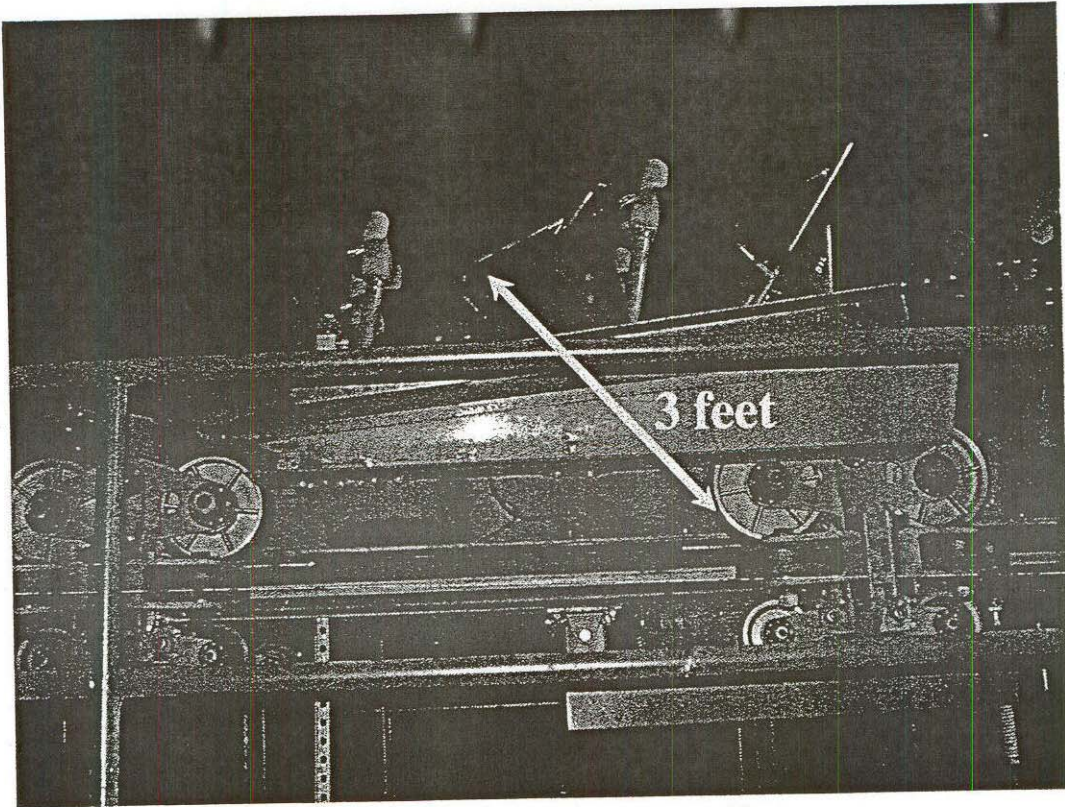


Photo #14 – Coaster Car
(Distance indicated from patron arm to rear wheels)

ACCIDENT/INCIDENT SCENE LOG

LOCATION: Six Flags – Agawam, MA DATE: May 1, 2004
INSPECTOR Tom Gatzunis / Mark F. Mooney ARRIVAL TIME: 1845 hrs.
Special Ed Lalancette,
SCENE SECURED BY: Agawam P.D. TIME SECURED: 1615 hrs.
SCENE RELEASED TO: Mark Mooney, DPS DATE/TIME: 1845 hrs

NAME	AGENCY	REASON AT SCENE	ARRIVED	DEPARTED
Special Ed Lalancette	Agawam P.D.	Secured scene	1615 hrs	Unknown
John Drake	Six Flags	Safety Manager – First Responder	~1513 hrs	Unknown
Patrolman Barry Synec	Agawam P.D.	Secured scene	1745 hrs	2000 hrs
Todd King	Six Flags	Apparent First Responder	~1513 hrs	Unknown
Rich Craven	Six Flags	Apparent First Responder	~1513 hrs	Unknown
Jeff Desilets	Six Flags	Apparent First Responder	~1513 hrs	Unknown
Scott Maupin	Six Flags	Director of Operations	~1513 hrs	Unknown
Chris Golerowski	Six Flags	Ride Operator		
Shirley Acevedo	Six Flags	Ride Attendant		
Nicole Kazalis	Six Flags	Ride Attendant		
Charles Branche	Six Flags	Ride Attendant		
Jeffrey Desilets	Six Flags	Maintenance Mechanic	~1520 hrs	Unknown
Heather Lyons	Six Flags	Ride Attendant	~1510 hrs	Unknown

SUPPLEMENTAL INVESTIGATION SUMMARY

Inspector Gatzunis / Mooney Location: Six Flags - Agawam

Codes: W = Witness O = Operator S = Supervisor M = Maintenance Person
codes may be used singularly or in conjunction with other codes.

Name: Chris Golerowski Code: O Title: Ride Operator
Residence Address: _____ Home Phone: _____

Name: Shirley Acevedo Code: O Title: Front Unloader
Residence Address: _____ Home Phone: _____

Name: Nicole Kazalis Code: O Title: Back Unloader
Residence Address: _____ Home Phone: _____

Name: Charles Branche Code: O Title: Front Loader
Residence Address: _____ Home Phone: _____

Name: Michael Lalande Code: O Title: Height Checker
Residence Address: _____ Home Phone: _____

SUPPLEMENTAL INVESTIGATION SUMMARY

Inspector Gatzunis / Mooney Location: Six Flags - Agawam

Codes: W = Witness O = Operator S = Supervisor M = Maintenance Person
codes may be used singularly or in conjunction with other codes.

Name: Faith Thomas Code: W Title: patron

Residence Address: _____

Name: Chris Menard Code: W Title: patron

Residence Address: _____ Home Phone: _____

Name: Colin Campbell Code: W Title: patron

Residence Address: _____ Home Phone: _____

Name: Shane Hall Code: W Title: patron

Residence Address: _____ Home Phone: _____

SUPPLEMENTAL INVESTIGATION SUMMARY

Inspector Gatzunis / Mooney Location: Six Flags - Agawam

Codes: W = Witness O = Operator S = Supervisor M = Maintenance Person
codes may be used singularly or in conjunction with other codes.

Name: Angela Negron Code: W Title: Patron
Residence Address: _____ Home Phone: _____

Name: Hank Waltmire Code: W Title: Patron
Residence Address: _____ Home Phone: _____

Name: Jacquelyn Waltmire Code: W Title: Patron
Residence Address: _____ Home Phone: _____

Name: Janelle Bechdol Code: W Title: patron
Residence Address: _____ Home Phone: _____

SUPPLEMENTAL INVESTIGATION SUMMARY

Inspector Gatzunis / Mooney **Location:** Six Flags – Agawam

Codes: **W = Witness** **O = Operator** **S = Supervisor** **M = Maintenance Person**
codes may be used singularly or in conjunction with other codes.

Name: Scott Ahlers Code: W Title: Patron
Residence Address: _____ Home Phone: _____

Name: Anthony Arroyo Code: W Title: Patron
Residence Address: _____ Home Phone: _____

Name: Robert Bairstow Code: W Title: patron
Residence Address: _____ Home Phone: _____
Raymond, NH

Name: Kozey Rochefort Code: W Title: patron
Residence Address: _____ Home Phone: _____

SUPPLEMENTAL INVESTIGATION SUMMARY

Inspector Gatzunis / Mooney Location: Six Flags - Agawam

Codes: W = Witness O = Operator S = Supervisor M = Maintenance Person
codes may be used singularly or in conjunction with other codes.

Name: Jon Costa Jr. Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Eric King Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Katie Ahlers Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Pastor Joubert II Code: W Title: patron
Residence Address: _____ Home Phone: _____

SUPPLEMENTAL INVESTIGATION SUMMARY

Inspector Gatzunis / Mooney Location: Six Flags - Agawam

Codes: W = Witness O = Operator S = Supervisor M = Maintenance Person
codes may be used singularly or in conjunction with other codes.

Name: Leigh-Ann Woodcock Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Alicia Priebe Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Beverly Page Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Edward Dunn Code: W Title: patron
Residence Address: _____ Home Phone: _____

SUPPLEMENTAL INVESTIGATION SUMMARY

Inspector Gatzunis / Mooney Location: Six Flags - Agawam

Codes: W = Witness O = Operator S = Supervisor M = Maintenance Person
codes may be used singularly or in conjunction with other codes.

Name: Julie Sjostrom Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Vinnie DiTommaso Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Scott Maxwell Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Colleen Lewis Code: W Title: patron
Residence Address: _____ Home Phone: _____

SUPPLEMENTAL INVESTIGATION SUMMARY

Inspector Gatzunis / Mooney **Location:** Six Flags - Agawam

Codes: **W = Witness** **O = Operator** **S = Supervisor** **M = Maintenance Person**
codes may be used singularly or in conjunction with other codes.

Name: Denis Lono Code: W Title: patron

Residence Address: _____ Home Phone: _____

Name: Amanda Skinner Code: W Title: patron

Residence Address: _____ Home Phone: _____

Name: Matt Priebe Code: W Title: patron

Residence Address: _____ Home Phone: _____

Name: Michael Theriault Code: W Title: patron

Residence Address: _____ Home Phone: _____

SUPPLEMENTAL INVESTIGATION SUMMARY

Inspector Gatzunis / Mooney Location: Six Flags - Agawam

Codes: W = Witness O = Operator S = Supervisor M = Maintenance Person
codes may be used singularly or in conjunction with other codes.

Name: Sasha Mungal Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Mary Myers Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Mariah Joubert Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Sherri Occulto Code: W Title: patron
Residence Address: _____ Home Phone: _____

Name: Amanda Keyes Code: W Title: patron
Residence Address: _____ Home Phone: _____
