

Investigation of the Mel Park Vortex Incident North Carolina State Fair 2013

Date of accident: 10/24/13 9:21pm

Date device certified: 10/16/2013

Device state number: 9699

Device Registrant: Family Attractions Amusement, LLC: 1709 A Gornro Rd #379, Valdosta GA.31601

Device Owner: Joshua Macaroni

Device Operators: Timothy Tutterrow and Omar Toranzo

Amusement device inspection report: #327-101713

Injured persons: Ride attendant—Brian Shelters; Ride patrons—Shykema Dempsy, Anthony Gorham, Kisha Gorham, and Justen Hunter

Accident Summary and Device Description:

On October 24, 2013 at approximately 9:21 p.m., several ride patrons and a ride attendant were injured during the unloading process of the Vortex amusement device. Witnesses stated that the device had completed a ride cycle and ride attendants were helping unload passengers. While the remaining passengers were unloading, the device started unexpectedly. All of the seat restraints were in the open position when the device started. Passengers unloading from the passenger carriers were not secured by the seat restraint system and the force created by the rotation and inversion of the device ejected patrons onto the decking.

Mel Park, a ride manufacturer in Melara, Italy, manufactured the Vortex amusement device in 1997. The device has two passenger carriers, each of which contains four groups of four seats [see photo #1]. The total number of seats is 32. Each passenger carrier is connected to a vertical arm attached to a horizontal arm, which in turn is attached to a central base. The configuration of the ride without the passenger carriers resembles a "T". With the carriers attached it resembles a scale with the two passenger carriers hanging from each side. When the device is in operation, the "T" portion rotates, and the two passenger carriers at the end of the arms rotate. The vertical arms attached to the passenger carriers rotate as well, causing the passenger carriers to invert.

Passengers are secured in their seats by two forms of safety restraints: first, an over the shoulder harness; and, second, a long metal lap bar that locks across each row of four seats [See photo #6]. When all of the seat restraints are closed and locked, a light indicator on the control panel in the operator's room illuminates (HL41) [See photos #13-17]. This light confirms that all restraints are locked and secure and that the ride is safe to operate.

Under normal operating conditions, after all passengers have been secured in the passenger carriers, the operator in the operator's control room (also referred to as a "dog box" or "doghouse") starts the ride cycle by turning the drive switches to the "on" position. The operator then turns potentiometers on the control panel. There are three potentiometers that are used when operating the device: #1 controls

the center rotation, #2 controls the passenger carrier rotation, and #3 controls the arm rotation. These potentiometers increase and decrease the speeds during the ride cycle to provide different levels of thrills. The ride cycle is ended when the operator slowly brings the potentiometers back to the zero position and turns the drive switch to the “off” position. When the device has returned to its parked position, the operator releases the seat restraints by pressing a button on the control panel in the control room. Once the operator releases the restraints, the ride can no longer operate until the restraints are all returned to the closed position. The button to engage the ride is lit green when the restraints are secured, and the light is not illuminated when any of the restraints are not properly secured. When the light is not illuminated, the ride will not run.

Accident location:

The “Old Midway” of the N.C. State Fairgrounds located at 1025 Blue Ridge Road, Raleigh, N.C. 27607 [See State Fair Map].

Initial Inspection and Pre-Incident Report:

Inspection Process of the Vortex:

The Vortex arrived by truck during the evening of October 15, 2013, but remained outside the gates of the fairgrounds. Upon notification that the ride was at the site, two Elevator and Amusement Device (“EAD”) supervisors Wesley Tart and Tommy Petty separately went out and looked at it while it remained on the trailers. However, as the ride had not been brought to its location for set-up, no inspection of the ride occurred at this time.

At approximately 8:00 am on 10/16/2013, EAD inspectors Jeff Cole and Bart Evans were assigned to inspect the Vortex. They picked up and reviewed a copy of the manual at EAD’s office in Dorton Arena and proceeded to the ride’s assigned location on the Old Midway. By this time, the ride had been moved to its assigned location, but remained on its trailers.

The ride was transported on three trailers: one held the scenery; one held the main sweeps of the ride; and one held the passenger carriers. The inspectors began their inspection while the ride was still on the trailers and identified a crack in the footwell of one of the passenger carriers [See photo #6B]. The footwell is used to step into the passenger carrier. It was not a hazard that would be likely to cause a problem but the North Carolina rule is that a ride must pass 100% of the manufacturer’s recommendations for setup, maintenance and operation or else it cannot be certified for use at an event. The inspectors informed Joshua Macaroni that the crack would need to be repaired prior to certification. (Mr. Macaroni was later determined to be the owner of the Vortex device.)

The inspectors stayed at the ride for much of the rest of the day, watching as it was erected according to the manual’s instructions. The inspectors viewed the ride’s blocking being put in place followed by the jack stands for the platform and finally the unfolding of the accordion-style diamond decking. As the ride was erected, the inspectors looked at each part of it for any potential hazards. For example, they looked at the main gear of the ride; they viewed the covered commentator underneath the decking; they looked at the drive shaft and electric motors that went on top of the main tower before they were

installed; and then they viewed the drive shaft once it was put in place. The inspectors also watched the connection of the scenery to the ride which involved interlocking panels being secured on the edge of the ride. The inspectors viewed the hydraulic attachment of the arms to the ride and the attachment of the passenger carriers on the arms.

The next step required the inspectors to observe the torquing of the ride. The first things to be torqued were the horizontal arms. The inspectors noted that the manual required the torquing to be applied to the nut and not to the bolt. The inspectors informed Joshua Macaroni that he needed to torque the nut and not the bolt. Mr. Macaroni told the inspectors he would need to get a different wrench.

Mr. Macaroni got the necessary wrench from another amusement company and started to direct the torquing. The inspectors watched the torquing while listening for a click that occurs when the correct pressure is put on the nut. More torquing of nuts on the ride remained, but it was already approaching 6 pm. The inspectors left for the day; however, observation of the torquing of most of the remaining nuts was performed by EAD Deputy Bureau Chief Tommy Petty, along with supervisors Frank Clements and Wesley Tart.

There were a few nuts that were unable to be torqued that night because Mr. Macaroni did not have the correct socket attachment. Mr. Macaroni informed the supervisors that he would have it there in the morning so that they could complete their observation of the torquing process. Further assembly was postponed at around 9pm until the next morning.

On the morning of 10/17/13, Mr. Macaroni had the appropriate wrench attachment, and properly finished torquing the nuts under supervision of Inspectors Cole and Evans. During the morning the decking and jacking were finished and the assemblers constructed the operator's control room ("dog box"). The inspectors also noted that during the night the electric lines had been run from a generator to the ride and the lines were properly connected. The inspectors also checked the fencing and decking of the ride for tripping hazards and proper connections. They looked at the operator's control panel for proper labeling. At this time, the assembly and inspection process was put on hold because the inspectors needed to attend the joint press conference of the Commissioner of Labor and the Commissioner of Agriculture. During the press conference, a certified welder fixed the crack in the footwell of the ride and a thread on a bolt in the passenger carrier was shortened to remove the chance someone could trip on it. These two fixes were the only required fixes for the structure of the device.

Following the press conference, the next step was to check the safety restraint system. During this testing, Jeff Cole and Wesley Tart watched as Josh Macaroni disengaged each harness individually while the ride operator, Tim Tutterrow, and EAD inspector Bart Evans remained in the operator's station to ensure the safety light went off when any restraint was in the open position. The safety light turning off meant that the ride's safety restraint systems were not engaged, and that the ride could no longer run. Inspector Evans watched as the light went off when each individual harness was placed in an open position indicating that the ride detected the safety was not in place. Inspector Evans then watched as the light also turned off for each of the lap bars that went across the lap of four patrons as a secondary

safety restraint system. After all the safety restraint systems were proven functional, the inspectors asked to see the emergency procedures for the ride because it was a new ride. Tim Tutterrow and Josh Macaroni demonstrated these procedures.

Joshua Macaroni and Inspector Evans were on the deck of the ride while Tim Tutterrow and Inspector Cole were in the operator's control room. Tutterrow and Macaroni showed the inspectors the emergency stop, the regular stop, and the emergency evacuation procedures. The first demonstration was the standard stop, which slowly stops the ride and puts it back into its standard load/unload position. The next process was the emergency stop procedure which, when engaged, shuts off power to all systems on the ride. The inspectors then viewed how the ride could be put back into the load/unload position without power. Finally, for the emergency evacuation procedure, the inspectors saw how the restraint systems could be disengaged after the emergency stop had cut the power. Each seatback could be removed and the air stopped to release the over-the-shoulder harnesses. Each lap bar could be released with a screwdriver, at which point the patrons would be able to exit the device.

The inspectors next looked at the electrical control cabinets that were located on the ride's decking and did not find anything out of the ordinary. The inspectors did find a relay had come loose, which can happen when the rides are transported by road [See photo #33 for an example of the cabinets]. Inspector Cole pointed the relay out to Joshua Macaroni who then went to secure it. The loose relay was in an electrical control cabinet located center left of the center column as viewed from the front of the ride [See photo #2 for the position of the cabinet].

After the relay was secured, Macaroni or Tutterrow ran the ride in a test run. This run was not for certification purposes, but to ensure everything was connected correctly. When the ride was run, Mr. Macaroni noticed that one of the two passenger carriers was not properly spinning. He told the inspector, "it was working until you made me fix it [the relay]," or words to that effect. Because the ride had just been running, the inspectors were not on the deck. While Mr. Macaroni went back to fix the relay, the inspectors remained off the deck as they believed it was going to be a quick reconnection and the ride would be run again. Mr. Macaroni walked over to the electrical control cabinet where the loose relay had been found, took a screwdriver out, and performed work in that panel for approximately 10 minutes. The ride inspector did not assist in determining why the passenger carrier was not spinning as diagnosing operational issues is outside the inspector's scope of duties.

The inspectors at the Vortex were then able to complete the certification by doing the final inspection. As this was a new ride, and was the last to be certified due to its late arrival on site, additional inspectors and supervisors were present to observe the device's test run. Inspectors Cole and Evans verified the blocking was appropriately constructed, the integrity of the jacks, and the proper construction of the ride. The inspectors informed Josh Macaroni and Tim Tutterrow that they could proceed with a certification cycle.

During the first cycle of the certification run, the inspectors stood back and watched the ride run through its normal process, and listened for anything that might sound like a problem. After the ride ran

without any issues, two EAD inspectors took a test ride of the device. The test ride was not required but it provided inspectors the chance to view the ride from another vantage point and hear things that they might have otherwise missed. As the ride went through its second cycle, none of the inspectors, supervisors, or workers from other nearby rides noted anything wrong or out of the ordinary. Therefore, the inspectors gave the device its certification and placed its sticker on the device. In total, ride inspectors spent two days inspecting the ride prior to certification.

Once a ride is certified, only maintenance and repair in accordance with the manufacturer's specifications and recommendations can be performed. Whenever the owner or operator of an amusement device desires to install or use a substitute part or device which is not consistent with the manufacturer's specifications, the owner or operator is responsible for proving, to the satisfaction of the EAD Director, that the use of the substitute part or device is as safe as the use of the manufacturer's specified part or device. 13 NCAC 15 .0428 In addition, an amusement device must be inspected and tested each day by the owner or properly trained operator of the device prior to being put into normal operation. A record of each inspection and test must be made upon completion of the test. 13 NCAC 15 .0410. All electrical wiring, equipment and apparatus used for amusement devices or for lighting must comply with the National Electrical Code, NFPA 70 and must be properly and legally installed, operated and maintained. 13 NCAC 15 .0424.

Inspector Duties During Fair Operation:

During the 10-day run of the State Fair, ride inspectors and supervisors are assigned shifts so that at least three inspectors and one supervisor are on site while rides are in operation. Prior to the daily opening of the rides, inspectors conduct a visual inspection from the midways in an effort to identify any hazards. During the hours of operation of the rides, inspectors walk the midways to observe ride operators and attendants as well as the operation of the ride. If the ride inspector observes an unsafe condition, he has the ability to shut down the ride and require the unsafe condition to be corrected prior to allowing the ride to resume operation. Each day ride inspectors review daily inspection reports generated by the ride operator of each device. The inspection reports document the required daily check that has to be conducted for each device prior to beginning operation. Ride inspectors also respond when contacted by the Red Cross regarding patron complaints or injuries related to amusement devices. Ride inspectors also document incidents as necessary. Ride inspectors do not assist in troubleshooting issues with amusement devices and they do not provide technical assistance for repairs.

Monday Report:

On 10/21/2013, NCDOL EAD Inspectors Cary Creech and Barry Wilson were alerted by the Red Cross to an issue reported by Wake County Sheriff's Office about the Vortex on the Old Midway. Upon arrival, the inspectors saw a group of officers in front of the ride. Inspectors Wilson and Creech spoke with the officers who told them that the ride had stopped mid-cycle and the crew had emptied it of patrons before working on it. The officers did not know what was wrong and had not spoken with the operator about the problem. Inspector Wilson went up to the ride where the operator was running a test cycle. Inspector Wilson asked the attendant what had happened and was told the ride stopped mid-cycle but

he did not know why. After the test cycle finished the operator, who then identified himself as Tim Tutterrow, came down and spoke to Inspector Wilson.

Tutterrow stated that the ride had lost signal from one of the lap bars because of a problem with the plunger in the lap bar [See photo #12 for an example of the plunger]. When the ride lost the signal, it shut down because the safety circuit was broken, causing the ride to begin a safety stop. Tutterrow explained that he had used WD-40 on the plunger to allow it to go in and out. This allowed the plunger to activate the microswitch that completed the circuit. Inspector Wilson asked if there was any sort of display that showed the cause of the fault but Tutterrow told him that the ride did not have such a display.

Following that problem, the inspector viewed the testing of the device to ensure it was not malfunctioning. Although the lap bar had not engaged the microswitch, the ride's shutdown actually demonstrated that the safety system was properly functioning. The inspector understood that the ride's safety system detected a malfunction and the ride disabled itself to prevent any harm. The inspector asked Tutterrow to run through another test cycle before reopening to ensure the problem did not reoccur. Inspector Wilson also told Tutterrow to make a note of this issue in his daily maintenance report. Finally, Tutterrow was told that if problems continued to occur he should shut down the ride and notify EAD inspectors immediately.

Tutterrow then ran the second test cycle. Inspectors Creech and Wilson viewed this test cycle and the ride operated normally. Inspector Wilson made note of the problem and filed it as part of his daily report [See Incident Report generated 10/21/2013]. EAD inspectors received no further reports of problems with the ride from operators, patrons, Red Cross, or the Sheriff's Office until the night of the incident, 10/24/2013. The inspection and maintenance reports prepared by the operators of the ride (Tim Tutterrow and Omar Toranzo) and submitted to the EAD inspectors each day did not indicate any issues prior to the night of the accident.

Accident Investigation Details:

At 9:21 pm on October 24, 2013, a worker with Wade Shows reported an accident to Supervising Inspector Wesley Tart. Supervisor Tart was working with a team of inspectors at the fairgrounds when he received the call from the Wade Shows employee, who was in the area where the accident occurred.

After the phone call about the accident, Supervisor Tart gathered his team and rushed to the scene to assess the situation. When he realized the magnitude of the accident, he notified Bureau Chief Tom Chambers and requested assistance from local law enforcement on the scene to secure the area and preserve evidence. Mr. Tart also requested assistance in identifying potential witnesses and obtaining their statements. Local law enforcement complied with these requests. During these early moments, the injured were treated and transported to local healthcare facilities. Mr. Tart was in the process of beginning his investigation when the Wake County Sheriff's Office assumed control of the scene. Mr. Tart assisted officers to ensure their safety as well as to preserve evidence during their investigative process.

After the Wake County Sheriff's Office ("WCSO") and representatives from the City County Bureau of Investigation ("CCBI") processed the ride, the inspectors regained limited access to the device and were able to resume their inspection. Inspectors began photographing the device to capture the condition and position of all electrical controls and mechanical components in order to document the condition of the device [See photos #1-86].

Photos taken the night of the accident show all but one of the lap bars were in the open position. One lap bar was not completely open [See photos #5-8].

The lap bar indicator light (HL 41) [See photo #14] found at the operator control panel was illuminated. This indicator light should not be illuminated if any of the lap bars are in the open position [See photos #2-12].

Photos also show the emergency stop button located in the operator's control room, on the control panel, was not activated. If the emergency stop had been activated the button would have been in the closed or down position. The power to the device would have been shunted, disconnecting all electrical connections and leaving the ride without any lights illuminated. This was not the condition in which the device was found. The device was energized and the emergency stop was not activated [See photos #5-10, 13].

During the inspection of the device after the accident, wire jumpers were found in a junction box located at the center of the device, above the deck level [See photos #24-26]. The jumpers, one black and one orange, were connected to terminal connections: orange jumper 3-43 to 10-4; black jumper 3-43 to 10-8 [See photos #27-32]. During this same investigation, a wire jumper was found in the electrical control cabinet where the loose relay had been found during the initial inspection. This wire jumper was not attached to any relays or terminals. The wire was stripped at both ends and was approximately 18" in length.

Items in the operator's control room of the Vortex were taken into evidence by EAD inspectors, including ride manuals in English, French, and Italian, electrical schematics, and daily inspection sheets for the ride [See Manuals, Schematics, and Daily Inspection Sheets].

While being interviewed by the WCSO, Mr. Tutterrow admitted that he had had placed one of the jumpers found by the EAD inspectors in the junction box.

Mr. Tutterrow stated that during the inspection of the ride on 10/17/2013, there was a problem with the right passenger carrier. After telling the inspector that the problem likely occurred when he was securing a loose relay, Mr. Joshua Macaroni entered the electrical control cabinet where the relay was located. Tutterrow stated that he was on the deck next to Josh and was told not to allow anyone to see what was occurring. Tutterrow stated that a jumper was added to allow the ride to spin. After less than

10 minutes of work in the cabinet where the loose relay had been found, the ride was reengaged and worked correctly.

After the ride was certified, Macaroni told Tutterrow and the other crewmembers to take a break. When they returned, Macaroni told Tutterrow that he had jumped out the right passenger carrier. [This would be consistent with the inspectors finding an unattached jumper in the electrical control panel and one of the two jumpers found in the junction box.]

Mr. Tutterrow stated that there were no problems with the ride until Monday, 10/21/2013. After the inspectors examined the ride on 10/21/13, Tutterrow experienced additional problems with the ride. The button in the operator's control room that was supposed to release the lap bars stopped working. Mr. Tutterrow addressed the problem by having the attendants use a relay in one of the electrical control cabinets to release the restraints [See photo #39]. Mr. Tutterrow opened the junction box to troubleshoot the ride on Monday after closing. At that time, he observed a jumper for the right side of the ride. Mr. Tutterrow inserted a similar jumper for the left side of the ride. With the jumper in place, the ride operated.

Mr. Tutterrow stated that on Tuesday, 10/22/2013, he spoke with Joshua Macaroni by phone. During that conversation, Macaroni confirmed to Tutterrow that he had placed the first jumper in the junction box after the ride was certified. He instructed Mr. Tutterrow to leave both the jumpers in place and continue to operate the ride until he (Joshua Macaroni) arrived to look at it. While Tutterrow expressed concerns about operating the ride in this fashion, he did as instructed.

According to Tim Tutterrow, Joshua Macaroni arrived on site on Wednesday, 10/23/2013, and checked the ride. At that time, he told Tutterrow that they would fix the ride at its next location. In the meantime, Tutterrow was to continue operating the ride with the jumpers in place.

In the early morning hours of 10/25/2013. EAD inspectors asked Mr. Tutterrow questions to confirm what they thought they had found. They asked him if the lap bars had been bypassed, and he said yes. Mr. Tutterrow was asked if he was the person that bypassed the lap bars, and he said yes. Mr. Tutterrow was asked if he used wire jumpers to accomplish the bypass, and he said yes. The inspectors on scene asked if the jumpers were located in the junction box located in the center of the device [see photos #24-26], and he said yes. Mr. Tutterrow was asked if there was one black and one orange jumper, and he said yes. Mr. Tutterrow was asked if he installed the jumpers on his own, and he said that he was told to do it by Joshua Macaroni.

EAD inspectors then asked Mr. Tutterrow what he recalled about the accident. He stated that he was in the doghouse (operator's control room) when he noticed the attendant waving his arms at him. He said he looked out the control room window and saw the tubs (passenger carriers) turning. He said he panicked and started turning all of the controls. Mr. Tutterrow was asked if he activated the emergency stop, and he said no. At that time, the EAD inspectors completed their initial investigation of the device and removed the power source from the device.

On October 26, 2013, Dr. Leonard White, Associate Professor of electrical engineering at N.C State University, was contacted to assist with the EAD investigation. Dr. White was asked to review the electrical schematics confiscated the night of the accident, and possibly visit the fairgrounds at a later date to assist with testing.

According to the ride specifications, Mel Park in Melara, Italy manufactured the Vortex in 1997. Mel Park went out of business sometime between 1997 and 2000. In 2000, Technical Park in Melara, Italy was established. Several employees of Mel Park were hired by Technical Park, and a number of them currently remain at the company. Technical Park manufactures rides, including rides that are similar to the Vortex. On November 19, 2013, Technical Park was contacted for assistance in evaluating the Vortex. Christian Martini is an electrical engineer with Technical Park and was a former employee of Mel Park and had participated in the manufacture and construction of the Vortex.

Mr. Martini reviewed the electrical schematics for the Vortex confiscated the day of the accident. Mr. Martini noted additional/modified wiring not consistent with the ride's original design, had been added to the schematics. Mr. Martini also confirmed that the data tag with the name Technical Park (a metal plate affixed to the device listing the devices specifications) was not a Technical Park data tag [See photo #1]. Mr. Martini stated that Mel Park Rides, not Technical Park, made the Vortex and that the Technical Park number #87 affixed to the Vortex, was assigned to a device currently operating in Europe. He also stated that the Technical Park plate affixed to the Vortex showed a date of 1997. This could not be accurate as Technical Park was not created until 2000.

After discussing the location of the jumpers found by NCDOL EAD inspectors, both Dr. White and Mr. Martini determined that the orange and black jumpers found in the junction box located at the center of the device bypassed all safety restraint systems. In effect, the ride would start with one or all of the safety restraints open. These conclusions were based upon the physical evidence presented, the electrical schematics, and the location of the wire jumpers discovered after the accident [See reports by Dr. White and Mr. Martini].

On December 3, 2013, Dr. White, Detective Chamblee, and EAD Bureau Chief Tom Chambers traveled to the State Fairgrounds to allow Dr. White an opportunity to see the device for the first time. Dr. White wanted to confirm that the wiring was consistent with the electrical schematics, and familiarize himself with the device.

On December 12th 2013, Dr. White, EAD Assistant Bureau Chief Tommy Petty, WCSO Det. Blackwell, Tom Chambers, Christian Martini, and Cristian Pasolini (also with Technical Park), met at the State Fairgrounds to review and conduct testing of the Vortex ride. CCBI recorded the testing. The electrical structure was compared to schematics taken from the device the day of the accident. Mr. Martini noted that additional electrical wiring was added to the device not consistent with its original design [See reports by Dr. White and Mr. Martini].

Mr. Martini was shown the jumpers found the day of the accident, and later removed by the WCSO and placed into evidence. Mr. Martini was asked if the jumpers were suitable and of sufficient size to be used to electrically bypass the safety circuits they were found attached to, and his answer was "yes." The jumpers were then placed back into the evidence packet and secured by Det. Blackwell.

New jumpers were made from the same size and type of wire as the jumpers in evidence. The wire used was found below the control room of the Vortex. These new jumpers were used for the testing. Mr. Martini also noted that seat restraint indicator lights on the passenger carriers were not present [See Fig. 12, p. 16 of Dr. White's report where fiberglass has been added to seal over the area where the lights previously would have been located]. The indicator lights were located on the outside of each passenger carrier and were designed to light up if all restraints for that section of seats were closed and locked. Mr. Martini also noted that the seat-restraint release button, located in the operator's control room on the control panel, was not operable. Mr. Martini was able to release the restraints by depressing two relays, located in an electrical control cabinet on the deck of the ride center left side [See photo #39], labeled Lap bar release. [The discovery of this condition supports statements made by ride attendants and eyewitnesses present at the time of the accident that the ride attendants were opening a cabinet to release the restraints from a box located at the center of the ride.]

Test dummies were placed into the passenger seats on one passenger carrier and all safety restraints were placed into a closed and locked position (primary and secondary).

With the jumpers removed, the device was energized and Mr. Martini attempted to operate the device. The device would not leave the parked position.

The newly made jumpers were added by Mr. Martini to the same connection points where the original jumpers were discovered the night of the accident. Mr. Martini energized the device again and the device started and went through an entire ride cycle.

The device was returned to the loading/unloading position, and all of the primary and secondary restraints were opened. The device was again started and operated one ride cycle. With the all restraints open, the test dummies were ejected from the device as the device rotated and inverted.

Additional Information:

Prior to the State Fair, Wade Shows submitted an electronic version of the Vortex manual in to EAD.

Amusement Device Collection Form: EAD requires ride operators to submit an Amusement Device Collection Form. This form provides EAD specific information for rides such as: ride trade name; manufacturer name; ride type (e.g. adult, kiddie); year manufactured; state ID number; compliance with bulletins; whether NDT is required; and, the serial number of the ride.

On October 6, 2013, EAD received electronically an Amusement Device Data Collection Form completed by Sharon Parks, Wade Office Manager. This form indicated the following: Company Name—Family

Attractions, LLC; Company Address—1709 A Gornito Rd 379; Company City/State/Zip—Valdosta, GA, 31601; Contact—Joshua Macaroni; Ride Trade Name—Vortex; Manufacturer Name—Technical Park; Ride Type—A (Adult); Year Manufactured—1997; State ID #--Not Provided (note: this ride had not yet had a State ID issued as it was new to North Carolina); Complied with Bulletins—Yes; NDT (Non-destructive Testing)—No; Serial #--87. Joshua Macaroni was listed above the signature of owner or manager. There is an additional area on the right side of the form that allows a book-in operator to indicate if the owner of the device is different from the operator of the device. This area on the form submitted for the Vortex was left blank.

Location Notice: EAD requires ride operators to submit an Advance Location Notice 10 days prior to the date of the requested inspection. This form provides NCDOL the actual location of the ride to be inspected as well as other relevant information about the ride.

On October 8, 2013, EAD received electronically a completed Advance Location Notice from Family Attractions Amusements, LLC, 1709 A Gronito Road #379, Valdosta, Georgia 31601. The company contact was Dominic Macaroni. The Advance Location Notice requested an inspection of the device, Vortex, on October 17, 2013 at the NC State Fair, 1025 Blue Ridge Road, Raleigh.

Inspection Payment: EAD requires payment prior to inspecting a ride for compliance with the laws and rules adopted by NCDOL. On October 16, 2014, a credit card payment was made to the Budget Division of NCDOL for inspection fees associated with the inspection the Vortex for Family Attractions. Ruby Macaroni provided her credit card details and approved processing of the payment.

Certificate of Liability Insurance: N.C. Gen. Stat. § 95-111.12(b) requires that the owner provide proof of insurance. Family Attractions Amusements LLC has several rides that it plays at venues in North Carolina. On March 6, 2013, prior to any ride inspections for 2013, Family Attractions Amusements LLC submitted a Certificate of Liability Insurance indicating insurance coverage in the amount of one million dollars (\$1,000,000) per occurrence against liability for injury to persons or property arising out of the operation or use of its devices. Subsequent contact with the company that provided the certificate indicated that the Vortex was added to the policy after its arrival in the United States and purchase by Joshua Macaroni. Certificates issued to other states and interested parties specifically listed the Vortex as being covered under the Family Attractions Amusement insurance policy.

Amusement Device Inspection Report: This is the report generated by NCDOL after an inspection has been completed. It indicates any deficiencies or non-compliant issues with the device inspected. On October 16-17, 2013, NCDOL ride inspectors inspected the Vortex. The inspection report indicated two pre-inspection violations: a weld crack at footwell bracing #5 tub; and the need to properly secure loose relay in electrical controller.

Daily inspection reports completed by the ride operator were submitted to the State Fair Contractors' Office. Ride inspectors for NCDOL went to the office on a daily basis to review the daily reports to

ensure daily inspections conducted by the ride operators are documented in accordance with the requirements of 13 NCAC 15 .0410.

According to information from the Florida Department of Agriculture and Consumer Services, Bureau of Fair Rides Inspection, the nameplate on the ride was created in anticipation of the Miami-Dade County Fair and purchased on behalf of Family Attractions Amusement by North American Midways Entertainment (NAME). The plate's USAID number is connected to a corresponding data entry in the Florida system for a Vortex ride manufactured by Technical Park .The owner is listed as being Family Attractions Amusement.

Following the accident, questions arose regarding who owned and operated the Vortex which resulted in the collection of the following additional documents:

- May 24, 2011: Josh Macaroni is listed on the Amusement Device Inspection Report as the representative of Family Attractions Amusement, LLC at a fair in Franklin, NC to whom inspectors pointed out violations during the inspection process.
- January 22, 2013: A financing statement (Form UCC-1) filed in Coweta County Georgia on behalf of the secured party Firestone Financial Corp., against the Debtor listed as Joshua Macaroni with an additional debtor of JJ Concessions. No additional information was found relating to the additional debtor in any other filings. The subject of the UCC-1 was to secure the secured party with regard to "(1) 1997 TECHNICAL PARK VORTEX AMUSEMENT RIDE MOUNTED ON (2) TRAILERS".
- March 1, 2013: A lease agreement between Joshua Macaroni and Family Attractions Amusement, LLC for the Vortex, Alpine Bobs, and Badlands ride was signed. The lease is signed by Dominic Macaroni on behalf of FAA, LLC as "insured" and Joshua Macaroni as the owner of the equipment as "additional insured."
- March 14-26, 2013: Vortex plays the Miami Dade County Fair in Miami. Maintenance logs for the ride are on Family Attractions forms that include Vortex already printed in the spot for the ride name. The information about the maintenance is found on a form called Daily Inspection and Maintenance, Twelve Day Report. Each form has 12 sets of boxes to check off when each individual inspection is performed, as well as boxes at the bottom of the second page of each report for the operator to sign his initials. In the case of almost each and every single form, the forms are signed with the initials "TT", indicating Tim Tutterrow.
- July 4-13, 2013: Vortex plays a Fair in Columbus, Indiana. The Indiana Department of Homeland Security Division of Elevator/Amusement Safety produced a form called the "Amusement Device Correction Order" that lists Tim Tutterroon (Tutterrow) as the designated owner representative during inspection at the Fair, includes reference to insurance documentation, and lists the Owner name for the device "Vortex" as Family Attractions Amusements. The same style Family Attractions form called a twelve day report was again used for this fair, with boxes to sign off when each inspection is performed.
- July 24-August 4, 2013: Vortex plays Ohio State Fair (July 26, 2013—Vortex does not run, Tim Tutterrow signs off on maintenance work). There are multiple forms produced for the time in Ohio. There is an insurance certificate produced by Haas & Wilkerson Insurance on behalf of

Family Attractions Amusement dated 7/19/2013, that specifically lists the Vortex as a ride under the coverage and lists for a certificate holder the Ohio Department of Agriculture. There is also an Ohio Ride Permit Application that lists Family Attractions Amusement as the amusement company who will be operating the Vortex at the Ohio Fair. The Form recording maintenance work is a Family Attractions "Work Order" form. The form lists the work done, the date it was performed, and the fact that it was done by Tim Tutterrow on the Vortex. The same style Family Attractions form called a twelve day report was again used for this fair with boxes to sign off when each inspection is performed.

- August 16-24, 2013: Vortex plays in Lebanon, Tennessee. There is a document called the "Amusement Device Money Receipt" which is created by the Department of Labor and Workforce Development of Tennessee that lists as a contact Family Attractions and the amount received as \$1125.00. There is also a document created by the same entity called the "Amusement Device Ride Operating Permit" that lists as owner Ruby Macaroni, and lists Family Attractions as the company for the ride. Further, the contact point for the ride is listed as Ruby Macaroni and her phone number is listed. A form shows that the motor was rebuilt on 8/16, and seat 5-8 air hoses were fixed on 8/23. The form recording maintenance on the Vortex is on a Family Attractions Amusements form that is called "Work Order." The form is signed by Tim Tutterrow and references the work performed and the date the work was done. The same style Family Attractions form called a twelve day report was again used for this fair with boxes to sign off when each inspection is performed.
- October 14, 2013: Wade Shows releases a payment of \$16,657.75 in cash to Tim Tutterrow for the Vortex playing in Montgomery, Alabama. The payment receipt form by Wade shows lists that it is in regard to the use of the Vortex. The payment was listed on a receipt called an "Independent Settlement" and was paid in cash on behalf of Wade Shows and signed for by Tim Tutterrow on behalf of Marconi Rides. Wade shows is also listed on a Certificate of Liability Coverage issued on 10/4 and also states "Certificate Holder (Wade Shows) is listed as Additional Insured with respects (sic) to the Vortex Ride."
- Trucks on site at the North Carolina State Fair were marked with the FAA logo, and were marked with the Federal Department of Transportation identifier that is registered to Family Attractions Amusement.

Additional Information was obtained through the statements provided by witnesses to the accident and those involved in the ride's ownership and operation.

- Through counsel, Joshua Macaroni stated that he is the owner of the ride and the employer of the individuals working on the ride. He further stated that he is also a unit manager for Family Attractions Amusements and that the individuals working on the ride were also employees of Family Attractions Amusements. He stated that the individuals working on the ride were paid in cash but that the payroll was run through Family Attractions Amusements. Mr. Macaroni stated that Tim Tutterrow was in charge of the ride in his absence. Mr. Macaroni denies that he ever put any jumper in the ride and further denies that he instructed Tim Tutterrow to place jumpers in the ride.

- Through counsel, Family Attractions Amusement, LLC and its owners Dominic Macaroni and Ruby Macaroni (Joshua Macaroni's parents) have stated that the "do not own, operate, manage, maintain, or control the 'Vortex' amusement device that is the subject of the incident in question." "Family Attractions Amusement, LLC is an out-of-state corporation that does not own the Vortex, had no contract to provide the ride to the North Carolina State Fair, and was not operating the ride during the Fair. Moreover, the individuals operating the ride were not doing so on Family Attractions' behalf." An attorney for Family Attractions Amusement had previously acknowledged that the employment situation of the individuals working on the Vortex was a "fluid" one.
- All of the individuals working on the ride identified themselves as employees of Family Attractions Amusement, although some referred to Joshua Macaroni as their "boss" or supervisor.
- Three ride employees stated that Joshua Macaroni was present at the ride on Wednesday, October 23, 2013. Operator Tim Tutterrow stated that during this time Joshua Macaroni examined the jumpers and told him to operate the ride with the jumpers in place and that they would fix the ride when they got it to Charleston (the next location where the ride was scheduled to appear).
- Relief operator, Omar Toranzo, stated that he was aware that the green light on the control panel stayed on when the safety restraints were open. He said he asked Joshua Macaroni and Tim Tutterrow about it and they both said that they were aware of the problem and not to worry about it. He also stated that he heard Joshua Macaroni and Tim Tutterrow talking about jumpers but didn't know what they were talking about.
- Ride worker Carl Weidenhammer stated that they were notified the 2nd or 3rd day of the fair there was a problem with the ride and they would have to run it differently.

Cause of accident:

Witness statements and statements given by one of the ride operators (Tim Tutterrow) indicate that the device started while patrons were being unloaded from the device. Tutterrow stated that he was in the operator's control room when he noticed a ride attendant waving his arms at him. He stated that he panicked and tried to stop the ride, however it was unclear what he had done in his attempt to stop the device. Evidence discovered during the investigation confirmed that safety devices designed to prevent the ride from operating while the seat restraints are in the open position were bypassed electrically. It was determined that this bypass was accomplished using wire jumpers at an electrical terminal connection strip located in a junction box, located at the device's center above deck level [See photos #24-26]. Because the safety restraint systems were bypassed, the device could be operated with one or all of the restraints in the open position.

Conclusion:

Based on the information collected, testing conducted during the investigation, and witness statements, the safety restraint system on the Vortex was bypassed. This modification allowed the device to operate with the safety restraints unsecured placing the public and the employees of the device in danger anytime they were near the device. Ride operator, Tim Tutterrow, admits that he jumped out

the safety system for the left passenger carrier. Ride operators Tim Tutterrow and Omar Toranzo both admit to operating the ride while the safety-restraint release button on the control panel was inoperable and to operating with ride when the green light remained on when the safety restraints were not in place. While Joshua Macaroni denies having placed the other jumper in the junction box or having instructed Tim Tutterrow to place a jumper in the junction box, Joshua Macaroni appears to have had actual knowledge that the safety system had been by-passed. Alternatively, as owner of the ride, Joshua Macaroni had knowledge of the problems with the ride through the ride foreman, Tim Tutterrow. Similarly, while Family Attractions Amusement denies any ownership or control of the ride it leased the ride from Joshua Macaroni and exercised control over the ride and individuals working on the ride and had knowledge of the problems with the ride through its representatives Joshua Macaroni and Tim Tutterrow.

Violations:

Violation 1:

Citations Issued Against: Family Attractions Amusement, LLC; Joshua Macaroni; Tim Tutterrow; and Omar Toranzo

§ 95-111.9. Operation of unsafe device.

No person shall operate, permit to be operated or use any device subject to the provisions of this Article if such person knows or reasonably should know that such operation or use will expose the public to an unsafe condition which is likely to result in personal injury or property damage.

On or about October 17, 2013, the Vortex was inspected and ridden by NCDOL inspectors during the certification process. During this time Tim Tutterrow alleged that a jumper was connected to allow the ride to pass inspection. An unattached jumper was found during the accident investigation. The wire found was in the proper location and was the proper length to corroborate the allegations of Tutterrow. After looking into what the jumper would have done if it had been connected, it was discovered that the jumper would bypass every safety system on the ride and allow the ride to run even if other systems failed to function properly.

On or about October 22-24, 2013, the Vortex was operated with the addition of two jumpers. The placement of the jumpers allowed the ride to operate with the seat safety restraint systems open. This modification was not consistent with the original design. The bypassing of the safety restraint systems placed the public in danger in that the ride could be operated with the seat restraint systems open and unlocked.

Violation 2:

Citations Issued Against: Family Attractions Amusement, LLC and Joshua Macaroni

§ 95-111.7(b). Operation not in accordance with Article or rules and regulations.

No person shall operate or permit to be operated or use any device subject to the provisions of this Article otherwise than in accordance with this Article and the rules and regulations promulgated thereunder.

13 NCAC 15 .0407 IDENTIFICATION AND RATING PLATES

Every amusement device shall be identified by a trade or descriptive name and an identification number and there shall be firmly attached to the device in a readily visible location a metal plate upon which there is legibly impressed the name and number of the device, its model number if any, and the name and address of its manufacturer. Upon the same or another metal plate so attached there shall be legibly impressed the maximum safe number of passengers, and the maximum safe speed.

The data plate affixed to the Vortex did not contain all information required by 13 NCAC 15 .0407. In addition, information contained on the data plate was inaccurate.

When the Vortex arrived at the NC State Fair on October 16, 2013, a data plate was affixed to it at the center of the device where the two arms come together forming the "V" shape. The following information was contained on the data plate affixed to the Vortex:

Name of the device—Technical Park Vortex

Number of the device—87

Model number—33.000.00

Name of manufacturer—Technical Park

Address of manufacturer—not provided

Maximum safe number of passengers—32 seats

Maximum safe speed—revolutions—center 7 rpm, arms 3.7 rpm, cars 20 rpm

Additional information on the data plate—year of manufacture 1997; height 14 meters; width 19 meters; depth 20 meters; capacity per hour 1000 per hour; fixed installation weight 35 tons; minimum height requirement 54 inches.

Joshua Macaroni purchased the Vortex in March 2013. It was first played in the United States in Miami, Florida at the Dade County Youth Fair. (See Florida Department of Agriculture and Consumer Services Amusement Ride Inspection Report).

The English and Italian/French manuals for the Vortex that were located in the doghouse during the accident investigation contain a "Certificate of Origin". The Italian Certificate indicates the manufacturer of the Vortex is Mel Park s.n.c. and the serial number is 87. Christian Martini is an electrical engineer currently employed by Technical Park. Mel Park employed Mr. Martini when it manufactured the Vortex, serial number 87. Mr. Martini examined the Vortex at the NC State Fair grounds and confirmed Mel Park manufactured the device. In addition, Mr. Martini stated that when the Vortex was manufactured in 1997, Technical Park was not even in existence. Currently, Technical Park does manufacture a ride similar to the Vortex that was at the NC State Fair. Mr. Martini also verified that the

Technical Park ride with serial number 87 is not the Vortex that played at the NC State Fair. The Technical Park ride with serial number 87 is a device that is currently operating in Europe.

Violation 3:

Citations Issued Against: Family Attractions Amusement, LLC; Joshua Macaroni; Tim Tutterrow; and Omar Toranzo

§ 95-111.7(b). Operation not in accordance with Article or rules and regulations.

No person shall operate or permit to be operated or use any device subject to the provisions of this Article otherwise than in accordance with this Article and the rules and regulations promulgated thereunder.

13 NCAC 15 .0410 DAILY INSPECTION AND TEST

An amusement device shall be inspected and tested each day when it is intended to be used. The inspection and test shall be made by a person experienced and instructed in the proper assembly and operation of the device and shall be performed before the device is put into normal operation. The inspection and test shall include the operation of control devices, speed-limiting devices, brakes and other equipment provided for safety. A record of each inspection and test shall be made at once upon completion of the test on a form provided by the Director and shall be kept with the device and available to the Director for at least the previous 12 months.

- 1) The inspection and test shall be made by a person experienced and instructed in the proper assembly and operation of the device and shall be performed before the device is put into normal operation.

Tim Tutterrow admitted that he was aware that jumpers were placed in the ride, which bypassed the safety restraint system. At least one jumper was put in place on Monday night October 21, 2013. After the accident on October 24, 2013, two jumpers were discovered in a junction box located at the center of the device. It was determined that the two jumpers bypassed the safety restraint systems. This allowed the ride to operate with the safety restraints in the open position. Tutterrow stated that one of the jumpers was installed by Joshua Macaroni and that he installed the other one. He stated that he was told by Joshua Macaroni to operate the ride with the jumpers in place. When Tutterrow expressed concern to Macaroni about operating the ride with the jumpers in place, Macaroni told Tutterrow there was no time to identify the problem and they would figure it out at the next spot. With the jumpers in place, the equipment provided for safety, namely the primary and secondary restraints, could not be properly tested.

In addition, following the accident, witnesses reported that ride attendants released the safety restraints from an electrical control cabinet located at platform level on the left side of the ride

as viewed from the front of the ride. Under normal operating conditions, the safety restraints would be released from inside the operator control room.

On Tuesday and Wednesday, October 22 and 23, 2013, the daily inspection report was initialed by T.T., Tim Tutterrow. He indicated in the daily inspection report that the ride passed inspection when it in fact could not have passed inspection with the jumpers in place. The green light on the control panel staying on when the restraints were open was a visual reminder that the safety system was not operating properly. In addition, the safety restraint system should have been released from inside the operator's control room rather than an electrical control cabinet.

- 2) On Thursday, October 24, 2013, the daily inspection report was initialed by O.T., Omar Toranzo. No documentation was provided indicating that Toranzo was experienced or instructed in the proper assembly and operation of the Vortex. Toranzo indicated in the daily inspection report that the ride passed inspection when it in fact could not have passed inspection with the jumpers in place. The green light on the control panel staying on when the restraints were open was a visual reminder that the safety system was not operating properly. In addition, the safety restraint system should have been released from inside the operator's control room.

Violation 4:

Citations Issued Against: Family Attractions Amusement, LLC; Joshua Macaroni; and Tim Tutterrow

§ 95-111.7(b). Operation not in accordance with Article or rules and regulations.

No person shall operate or permit to be operated or use any device subject to the provisions of this Article otherwise than in accordance with this Article and the rules and regulations promulgated thereunder.

13 NCAC 15 .0411 CONTROL OF OPERATION

Every operator shall have knowledge of the use and function of all normal emergency operation controls and of the proper use of the device. An operator shall be in the immediate vicinity of the operating controls during operation and no other person shall be permitted to handle such controls during normal operation.

On October 24, 2013, the Vortex unexpectedly began cycling during the unloading of passengers. The ride operator failed to engage the emergency operation controls which would have immediately stopped the cycling of the device. An operator possessing knowledge of the use and function of all normal emergency operation controls would have activated the emergency stop to immediately stop the ride cycle.

Tim Tutterrow had knowledge that the safety restraint system had been compromised and continued to operate the Vortex while patrons were on the device. No operator with knowledge of the proper use of the device would have allowed the ride to operate or failed to use the emergency stop in case of malfunction.

Violation 5:

Citations Issued Against: Family Attractions Amusement, LLC; Joshua Macaroni; and Tim Tutterrow

§ 95-111.7(b). Operation not in accordance with Article or rules and regulations.

No person shall operate or permit to be operated or use any device subject to the provisions of this Article otherwise than in accordance with this Article and the rules and regulations promulgated thereunder.

13 NCAC 15 .0424 ELECTRICAL SAFETY REQUIREMENTS

General Requirements. All electrical wiring, equipment and apparatus used for amusement devices or for lighting shall comply with the National Electrical Code, NFPA 70 and shall be properly and legally installed, operated and maintained.

1. Tim Tutterrow admitted knowing that jumpers had been placed in the ride, which bypassed the safety restraint system. At least one jumper was put in place on Monday night October 21, 2013. After the accident on October 24, 2013, two jumpers were discovered in a junction box located at the center of the device. It was determined that the two jumpers bypassed the safety restraint systems, namely the primary and secondary lap bars. This allowed the ride to operate with the safety restraints in the open position. Tutterrow stated that he was told by Joshua Macaroni to operate the ride with the jumpers in place. When Tutterrow expressed concern to Macaroni about operating the ride with the jumpers in place, Macaroni told Tutterrow there was no time to identify the problem and they would figure it out at the next spot. With the jumpers in place, the equipment provided for safety, namely the primary and secondary safety restraint systems, could not be properly tested. The jumpers were not properly or legally installed.
2. Tim Tutterrow alleged that during the set-up of the ride and the inspection process, that a jumper was connected to allow the ride to pass inspection. An unattached jumper was found during the accident investigation. The wire found was in the proper location and was the proper length to corroborate the allegations of Tutterrow. After looking into what the jumper would have done if it had been connected, it was discovered that the jumper would bypass every safety system on the ride, and allow the ride to run even if other systems failed to function properly.

Violation 6:

Citations Issued Against: Family Attractions Amusement, LLC; Joshua Macaroni; and Tim Tutterrow

§ 95-111.7(b). Operation not in accordance with Article or rules and regulations.

No person shall operate or permit to be operated or use any device subject to the provisions of this Article otherwise than in accordance with this Article and the rules and regulations promulgated thereunder.

13 NCAC 15 .0428 SUBSTITUTE DEVICES AND PARTS

Whenever the owner or operator of an amusement device desires to install or use a substitute part or device which is not consistent with the manufacturer's specifications, the owner or operator shall be responsible for proving, to the satisfaction of the Director, that the use of the substitute part or device is as safe as the use of the manufacturer's specified part or device.

- 1) According to Mr. Tutterrow, the previous owner of the ride did not provide Joshua Macaroni with a control panel that allowed the ride to be lifted or dropped hydraulically while not on the decking. This control panel is used in assembling and disassembling the ride, before the passenger carriers are attached. As this part was not provided, they instead used a substitute device which did largely the same thing but which was not the manufacturer's device or part. The substitution was not shown to the inspectors, and therefore it was impossible for the owner or operator to prove the substitute part to be as safe as the manufacturer's device or part.
- 2) Following the accident, witnesses reported that ride attendants released the safety restraints by pressing a relay in an electrical control cabinet located at platform level on the left side of the ride as viewed from the front of the ride. Under normal operating conditions, the safety restraints would be released from inside the operator control room. Thus, the use of the relay in the cabinet acted as a substitute device for releasing the safety restraint systems instead of the original system in the operator's control room.
- 3) Tim Tutterrow admitted placing a jumper in the ride which bypassed the safety restraint system. At least one jumper was put in place on Monday night October 21, 2013. After the accident on October 24, 2013, two jumpers were discovered in a junction box located at the center of the device. It was determined that the two jumpers bypassed the safety restraint systems. This allowed the ride to operate with the safety restraints in the open position. Tutterrow stated that he was told by Joshua Macaroni to operate the ride with the jumpers in place. When Tutterrow expressed concern to Macaroni about operating the ride with the jumpers in place, Macaroni told Tutterrow there was no time to identify the problem and they would figure it out at the next spot. With the jumpers in place, the equipment provided for safety, namely the primary and secondary lap bars, could not be properly tested. The jumpers were installed inconsistent with the manufacturer's specifications. In addition, the owner or operator did not prove that the use of the jumpers was as safe as the use of the manufacturer's specified safety restraint system.
- 4) Tim Tutterrow alleged that during the set-up of the ride and the inspection process, a jumper was connected to allow the ride to pass inspection. An unattached jumper was found after the accident investigation. The wire found was in the proper location and was the proper length to corroborate the allegations of Tutterrow. After looking into what the jumper would have done if it had been connected, it was discovered that the jumper would bypass every safety system on the ride, and allow the ride to run even if other systems failed to function properly.

Violation 7:

Citations Issued Against: Family Attractions Amusement, LLC; Joshua Macaroni; Tim Tutterrow; and Omar Toranzo

§ 95-111.7(b). Operation not in accordance with Article or rules and regulations.

No person shall operate or permit to be operated or use any device subject to the provisions of this Article otherwise than in accordance with this Article and the rules and regulations promulgated thereunder.

13 NCAC 15 .0420 PUBLIC PROTECTION

An amusement device shall not be used or operated while any person is so located as to be endangered by it.

The Vortex was operated with jumpers in place that bypassed its safety restraint systems. The bypass of these systems also allowed the ride to operate when the ride normally would not operate, such as when the safety restraints had been released. Further, the safety restraint release switch that is usually operated from within the operator's control room was instead being accessed from outside on the decking of the ride in an electrical control cabinet. Both Tim Tutterrow and Omar Toranzo operated the ride in this manner and instructed other employees to release the safety restraints from within the zone of operation of the device.

The use and operation of the ride in this manner endangered both patrons and staff who approached the ride during the loading and unloading process because there was the potential for the ride to begin operation.

Corrective Action:

Prior to submitting a request for inspection of the Vortex device in North Carolina, the owner or the person permitting the operation of the device must provide written certification from a Professional Engineer licensed in North Carolina that they have examined the device. The certification must conclude that the ride complies with the original design of the manufacturer and that the design complies with NFPA 70. If any changes to the design have been made, or substitute parts have been installed, the certification must make note of those changes. Further, the document must certify that the substitute design or parts are at least as safe as the original design or parts of the device.

The owner or person permitting the Vortex device to be operated must also provide EAD with documentation establishing who will operate the device while it is in North Carolina. These persons shall be trained in the proper operation, emergency procedures, and safety features of the device. Further, the owner shall train the operator in the proper method to inspect the device each day, and the correct steps to take in the instance any issue is discovered during this inspection. The owner or person permitting the operation of the device shall provide documentation to EAD with a certification of the described training, as well as the names of all persons who received the training.

The owner or person permitting the ride to operate must also provide the device with a new nameplate that meets the requirements of the rules. The nameplate must include complete and accurate information about the device, and must be attached for the duration of its use in North Carolina.

Following the satisfactory provision of the above described documentation and certifications, EAD will provide notice that the device may be scheduled for an inspection in the usual course of business. During that inspection, the device will be inspected in the same manner as any other device presented for inspection, and must still comply with all laws, rules, and regulations generally applicable to amusement devices.