EXHIBIT 6-C

Docket No. DCA-08-MR009

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594

On-board Video Recording
Group Chairman's Factual Report

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, D.C. 20594

February 27, 2009

On-Board Video Recording - Group Chairman's Factual Report

NTSB Accident Number
DCA08MR009

By Doug Brazy

A. ACCIDENT

Location:	Chatsworth, CA
Date:	September 12, 2008
Time:	4:22 P.M. Pacific Daylight Time
Train(s) :	Metrolink 111 commuter rail / Union Pacific LOF-6512

B. GROUP

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C. SUMMARY

At about 4:22 p.m. PDT on September 12, 2008 a Southern California Regional Rail Authority (Metrolink) passenger train collided head-on with a Union Pacific Railroad freight train in Chatsworth, California. Chatsworth is approximately 33 miles northwest of Los Angeles, California.

D. DETAILS OF INVESTIGATION

The Union Pacific LOF-6512 freight train was equipped with Wabtec/March Networks VideoTrax[1] digital video recording devices in both of the locomotive units. These devices record audio, video, and some parametric data.

The video cameras are mounted to provide a forward facing view through the locomotive window. Black and white 720x480 pixel images are stored at a rate of 15 per second. The audio microphone captures sound from outside the locomotive cab. Global Positioning System (GPS) time/date, position, and speed are captured along with Horn and Pneumatic Control Switch (PCS) status (on or off). The recorders can store approximately 80 hours of video/audio/data on a 60 Gb removable hard disk drive.

The following devices were recovered from the accident scene and taken to the Union Pacific Headquarters in Omaha, Nebraska.

Removable hard disk drive (s/n KBDAA0426) removed from the lead locomotive unit (UP8485)

Recorder case (s/n KBAAJ4147) with installed removable disk drive (s/n ILKBAAJ4603) removed from the trailing locomotive unit (UP8491)

[1] Also commonly called “Track Image Recorder” or TIR. Union Pacific Railroad uses this nomenclature.

These units were downloaded in Omaha on September 15th under NTSB supervision. The NTSB retained copies of the last 2 hours of video/audio/data captured on each recorder.

Time of Day Information

The UP8485 (lead locomotive) recorder was configured to capture time of day from the on-board Global Positioning (GPS) receiver, when the locomotive unit is in the "lead" position in the consist.[2] For convenience, the time zone as displayed on the readout/playback software is Central Standard Time (CST) which is used system wide by the operator. Times presented in this report reflect Pacific Daylight Time (PDT), the time zone where the accident occurred. Time of day is recorded to the nearest whole second. However, by counting sequential images recorded at a known frame rate (15 Hz), times can be specified with more precision.

The time as recorded on UP8491 (trailing locomotive) recorder was about four minutes and seven seconds behind (earlier) than that on the UP8485 recorder. Presumably the UP8491 recorder was not recording the on board GPS time values, as the locomotive was not in the lead position.

Summary of Recordings

On January 15 2009, the group met at the NTSB laboratory to review and document the content of the recordings. The group made the following observations:

[2] The recorder will capture GPS time when the GPS signal is valid. If the GPS signal is invalid, the recorder can revert to another clock until the GPS signal becomes valid. There is no direct indication of which clock is in use. However, a review of the Locomotive's event recorder (a separate recording device on board UP8485) data indicates that the GPS signal was valid at the time of the accident. Values for GPS position are present when the signal is valid, and suppressed when the signal is invalid. See the separate report entitled Union Pacific Event Recorder Factual Report for this investigation.

Locomotive Unit UP8491

Locomotive 8491 was the 2nd of the two locomotives and was facing rearward in the locomotive consist. The camera view was of the top portion of a boxcar. The video portion of the recording ended about 5 seconds after impact, along with a “loss of video sync” message. The playback software indicates that the end of the recording occurred about an hour and twenty six later, at 17:43:59 PDT. The recording from locomotive 8491 did not contain any information useful to the investigation.

Locomotive Unit UP8485 (lead unit)

The camera view is from a forward looking camera which appears to be from the left front locomotive cab window. A grab iron and portion of the locomotive hood can be seen in the lower portion of the camera view. The track rails, ties and roadbed ahead of the locomotive can be seen, as well as wayside equipment. Visibility is unobstructed (no fog or haze obscuring the camera view), it appears to be generally sunny sky conditions.

Audio is captured by the recorder from what appears to be an externally mounted microphone. Locomotive horn and bell can be heard when they are activated. Crew conversations cannot be heard. Sounds similar to ‘air noises’ can also be heard coincidently with the PCS switch activation. After the collision, sounds similar to moaning can be heard. Some voices can be heard at a low volume, but speech can not be distinguished.

Speed and GPS position are recorded approximately every 11 seconds. The last recorded speed and position data were captured at 16:22:05 PDT: Speed 41.3 MPH, position 34.2721N latitude 118.6053W longitude.

The recorder continued to operate and capture video for approximately 81 minutes after the collision.

The following events and times were noted from the UP8485 video recording. Times printed here have been offset to Pacific Daylight Time (PDT) timezone in a 24 hour format.

16:15:35 The locomotive passes a double headed signal mast on the right side of the track at a location identified as the Santa Susanna Control Point, which is at the west end of Strathern Siding. The signal heads are a 3-lamp design with two lamps adjacent to one another, and a 3rd lamp below the other two. Only the top left side lamp on the upper signal head appears to be illuminated [‘clear’ signal indication]. The aspect of the lower head could not be determined.

16:17:38 As the locomotive approaches the east end of the Strathern Siding, it passed a single 3-lamp signal mast on the right side of the track identified as CP Davis. Only the top left lamp appears illuminated [‘clear’ signal indication].

16:18:13 Locomotive enters tunnel 26

16:20:12 Locomotive exits tunnel 26

16:20:15 Locomotive passes a double headed 3-lamp signal mast on the right side of the track. The mast has a number plate that reads 442.6. This is the 442.6 intermediate signal. The top right lamp is the only lamp that appears to be illuminated on both the upper and lower signal head. [advanced approach signal indication]

16:20:37 Locomotive enters tunnel 27.

16:20:52 Locomotive exits tunnel 27.

16:22:03.9 Locomotive enters tunnel 28

16:22:12 Locomotive exits tunnel 28.

16:22:18.0 The Metrolink locomotive is first visible at the upper right edge of the camera view.

16:22:19.5 An “air sound” can be heard, similar to emergency brake activation.

16:22:23.3 Collision occurs. The group could not discern the presence or location of any personnel inside the Metrolink locomotive cab before or after the collision. The interior of the Metrolink cab is too dark to see inside.

16:30:11 smoke is visible in the upper right corner of the view.

16:33:35 Sound similar to a helicopter can he heard.

16:42:00 Emergency personnel can be seen near the top of the view.

16:43:42 Emergency personnel begin striking the window in front of the video camera with an axe

16:46:17 Emergency personnel remove the window in front of the video camera and one of the locomotive crew exits through the window frame.

17:43:02 End of recording.

Douglass P. Brazy

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