NATIONAL TRANSPORTATION SAFETY BOARD

Office of Railroad, Pipeline and Hazardous Materials Investigations

Washington, DC

RRD21LR016

WT Byler Contractor Fatality

Castroville, Texas

September 22, 2021

IIC FACTUAL REPORT

Accident Information

Date of Accident:	September 22, 2021
Time of Accident:	2:40 p.m. daylight savings time
Railroad Owner:	Union Pacific
Contractor Employer:	WT Byler
Fatalities:	1
Type of Accident:	Equipment Operator Fatality
Equipment Involved:	Hi-Rail Track Excavator
Location of Accident:	Castroville, Texas
NTSB Ref. No.	RRD21LR016

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Investigative Group

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Investigative Parties

Parties to this NTSB investigation include the Federal Railroad Administration, Union Pacific Railroad, and WT Byler Company.

Accident Summary

On September 22, 2021, about 2:40 p.m. local time an equipment operator employed with the W.T. Byler Company (WT Byler) was struck and fatally injured by a suspended load consisting of steel grating that he was moving with a mini-excavating machine that was equipped with a standard boom for the lifting and loading of materials near Castroville, Texas. The Federal Railroad Administration (FRA) regulation under Part 214-Subpart D classifies this machine as a roadway maintenance machine (RMM) equipped with a boom/crane. At the time of the accident, the equipment operator was performing contract open-deck bridge work on the Chacon Creek Bridge which is located on the Del Rio Subdivision for the Union Pacific Railroad Company. The operator was utilizing a CAT-308 mini-excavating machine equipped with a lifting boom and hi-rail wheels to transport sections of steel grating from milepost 240.37 (west end of Chacon Creek Bridge) to

a materials staging area located to the west at milepost 240.74. The accident occurred at milepost 240.65 while the suspended load was in transit to the materials staging location. No other employees were near the track area, and no other employees witnessed the accident.

Del Rio Subdivision Description

The Del Rio Subdivision is part of UP's South Texas Service Unit, and operates between Control Point Kirby located at milepost 201.4 and Control Point Del Rio located at milepost 379.4, and is geographically configured in an east to west direction. The milepost along the subdivision increase traveling in a westward direction starting at Control Point Kirby. The subdivision consists of 17.4 miles of double main track and 160.6 miles of single main track, and 17 passing sidings. Trains that operate on the Del Rio Subdivision are governed by signal indication and a Centralized Train Control System. Along this portion of the Del Rio Subdivision, Union Pacific averages about 47.1 million gross tons annually across the line.

Accident Site Description

The accident occurred while the equipment was traveling westward in a right-hand 2° 50-minute (2.83) curve, with 4.5 inches of super-elevation. The main track was constructed with wood crossties measuring 9 inches by 7 inches, and measuring 8 foot 6 inches long, spaced on 19.5-inch centers (nominal). Both running rail sections consisted of 136-pound RE---CWR. The running rails were fastened to the crossties through double shoulder tie plates with standard cut spikes to maintain and secure the track gauge. The cut spiking pattern consisted of one rail hold spike and one plate holding (back-up) spikes on the field side of the rail, and two rail holding spikes and one plate holding spike on the gauge side of the rail. Every other crosstie was box anchored with locking style anchors to assist in restraining longitudinal movement of the continuous welded rail

due to train dynamics and thermal forces. The track structure was supported with 2.5-inch fractured ballast. The main track has a maximum authorized speed (MAS) of 55 mph for passenger trains and 55 mph for freight trains.

Chacon Creek Bridge

The Chacon Creek Bridge was constructed in 1907. The bridge is an open-deck wood timber structure and measures 198 feet long. The running rails are fastened to the bridge timbers with MSR (plate manufacturer) bridge plates, screw lags and rail clips fasteners. The bridge is mainly constructed with 15 feet long bridge timbers, and at every 10 feet interval, a 20 feet long bridge timber exists for fastening down the steel walkway gratings. There are ten 20 foot long by 3 feet wide steel walkway gratings located to the field side of each running rail that permits a location for personnel to clear for trains while traversing the bridge.

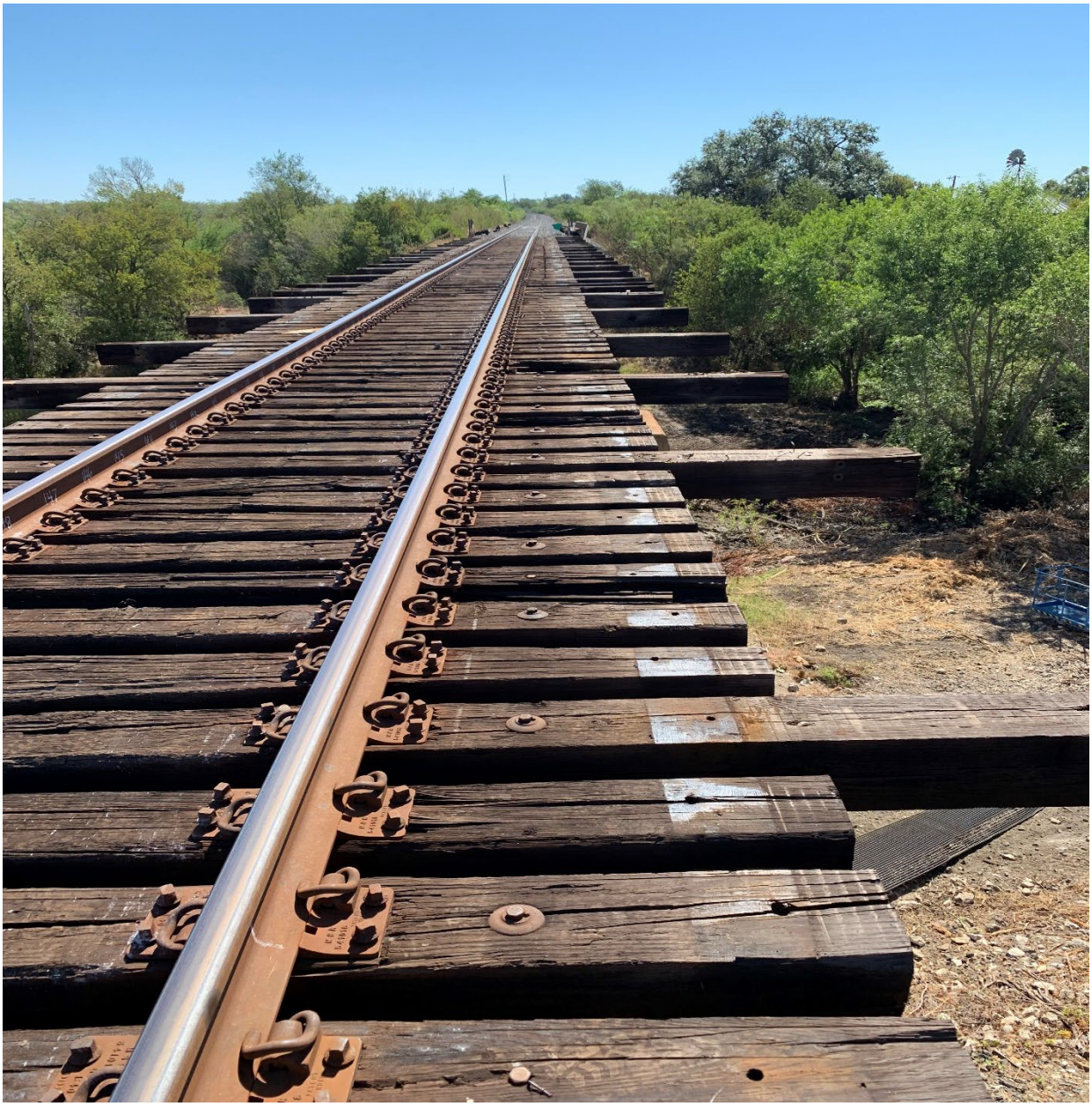

Figure 1- photo of Chacon Creek Bridge

Circumstances Prior to the Accident

On September 22, 2021, Union Pacific bridge department personnel was scheduled to perform open-deck bridge work for preparation to install bridge timbers a cross the Chacon Creek open-deck bridge. The work was scheduled to be performed in working blocks under track and time authority between CP Lacoste and CP Noonan. Sometime after the initial on-track job safety briefings were completed, the equipment operator reported for his work assignment and stood by at CP Noonan in his vehicle. Investigators could not confirm if the operator received an official on-track job safety briefing, but through interviews conducted with both WT Byler and Union Pacific officials, the operator was not present at the initial morning job safety briefing. When asked during interviews, both the UP bridge supervisor and the UP bridge foreman could not confirm any on-track job safety briefing details with the contract equipment operator, but both did state that they did have conservations with the operator prior to him performing any equipment operations. FRA did take exception to the operator not receiving an FRA required on-track job safety briefing as required by FRA's Roadway Workplace Safety Part 214.315, and initiated a violation and civil penalty to Union Pacific.

Per the UP bridge foreman, the operator was instructed to utilize his assigned rail mounted mini-excavator (owned by WT Byler) to remove the steel walkway grating panels from the bridge structure, and to stage them along the ballast shoulder just west of the bridge approach at milepost 240.37. From there, the operator was instructed to transport the steel gratings to the material staging location at milepost 240.74. Investigators learned that the operator was experienced in performing this work, utilizing the same type of equipment (tie crane) many times.

Once track and time authority was granted, Union Pacific and WT Byler bridge employees

entered the track/bridge structure and started to unbolt the steel walkway gratings from every fifth bridge timber. Once all the steel walkway gratings were unbolted from the structure, the bridge personnel were instructed to clear the track so that the equipment operations could be started. This allowed the machine operator to have the entire work limits to remove the steel walkway gratings from the bridge, safely stack them at the end of the bridge, and transport the panels back to a material staging location.

Once the operator was informed that the bridge personnel were clear from the track, the operator rail mounted his equipment at the road crossing at CP Noonan and track traveled to the bridge to begin removing the steel gratings. After removing all the steel walkway gratings from the bridge, and stacking them along both ballast shoulders, his next task was to transport the steel gratings back to the material staging location. The operator utilized his equipment to transport the suspended steel gratings positioned out in front of his equipment, and directly in his path of travel, while attached and hanging from the standard boom, and without the use of a flatcar or rail-carts to safely secure the suspended load. Union Pacific Safety Rule No. 77.4 states that *"do not use the crane or other hoisting device to transport suspended loads. Use a flat car or other conveyance to release the weight from the boom during transit".*[1] The operator completed three successful trips transporting the steel walkway grating back to the material storage location. The accident occurred on the fourth and final trip when the operator was transporting the last of the three remaining steel walkway gratings to the material staging location. Investigators estimated the total weight of the suspended loaded to be about 2,200 pounds. Investigators did confirm that the weight of the

[1] Rule No. 77.4 can be found in Union Pacific's Safety Rules manual with an effective date of June 1, 2017, which includes updates as of February 15, 2019.

materials being transported did comply to manufacturer maximum weightlifting requirements. No other workers were wayside that witnessed the accident.

BTE Tie Talon Attachment

At the time of the accident, the operator was utilizing the BTE Tie Talon to grab and transport the steel grates to a materials staging location. BTE states that the BTE Tie Talon is a work head designed to remove, install, and transport single railroad crossties. The work head is a heavy-duty tie changing attachment that can be attached to backhoes and excavators, and provides a maximum squeeze pressure of 3,000 pounds per square inch.

Accident Equipment Description

The accident equipment was a model BTE-308-CR-Caterpillar Mini Hydraulic Excavator (BTE 308-WT) equipped with retractable railroad wheels that allows it to travel on railroad tracks. The machine was designed and outfitted to operate as a railroad roadway maintenance machine by Ballast, Tools, and Equipment (BTE). BTE designs, builds, sells, and leases specialty equipment for railroad track maintenance and construction. At the time of the accident, the machine was being utilized for the maintenance and repair of an open deck railroad bridge; thus, classifying the machine as an FRA defined roadway maintenance machine. The machine falls under FRA's roadway maintenance machine (RMM) standards as specified in 49 CFR Part 214- Subpart D, and is defined as an RMM equipped with a crane meaning "*any RMM equipped with a crane or boom that can hoist, lower, and horizontally move a suspended load*".

The machine was purchased directly from a CAT salesperson by WT Byler, with BTE coordinating the purchase, delivery and upgrading of the equipment for RMM utilization. The machine was purchased from CAT as a standard earth moving piece of equipment (excavating

machine) that came equipped with standard rubber tracks, standard length boom, and 3-foot digging bucket. Once delivered, BTE designed and built the machine to operate as an RMM, and also equipped the machine to work various railroad work head attachments (see https://btequip.com for additional information).

The machine is equipped with a standard-two-section boom and has the lifting capacity rating of 6,549 pounds for lifting materials over the front of the machine. The machine has a top speed of 3.2 mph when selected in "travel-speed high", and 1.9 mph when the machine is in "travel-speed low".

BTE work equipment identification numbers:

- Equipment Number- 308-50
- Model Number- 308-7
- Serial Number- GG802227

Equipment general specifications:

- Weight of equipment- 26,000 pounds
- Width of equipment- 7'6"
- Height of equipment- 8'4"
- Length of equipment- 23'6"
- Maximum boom reach- 24'

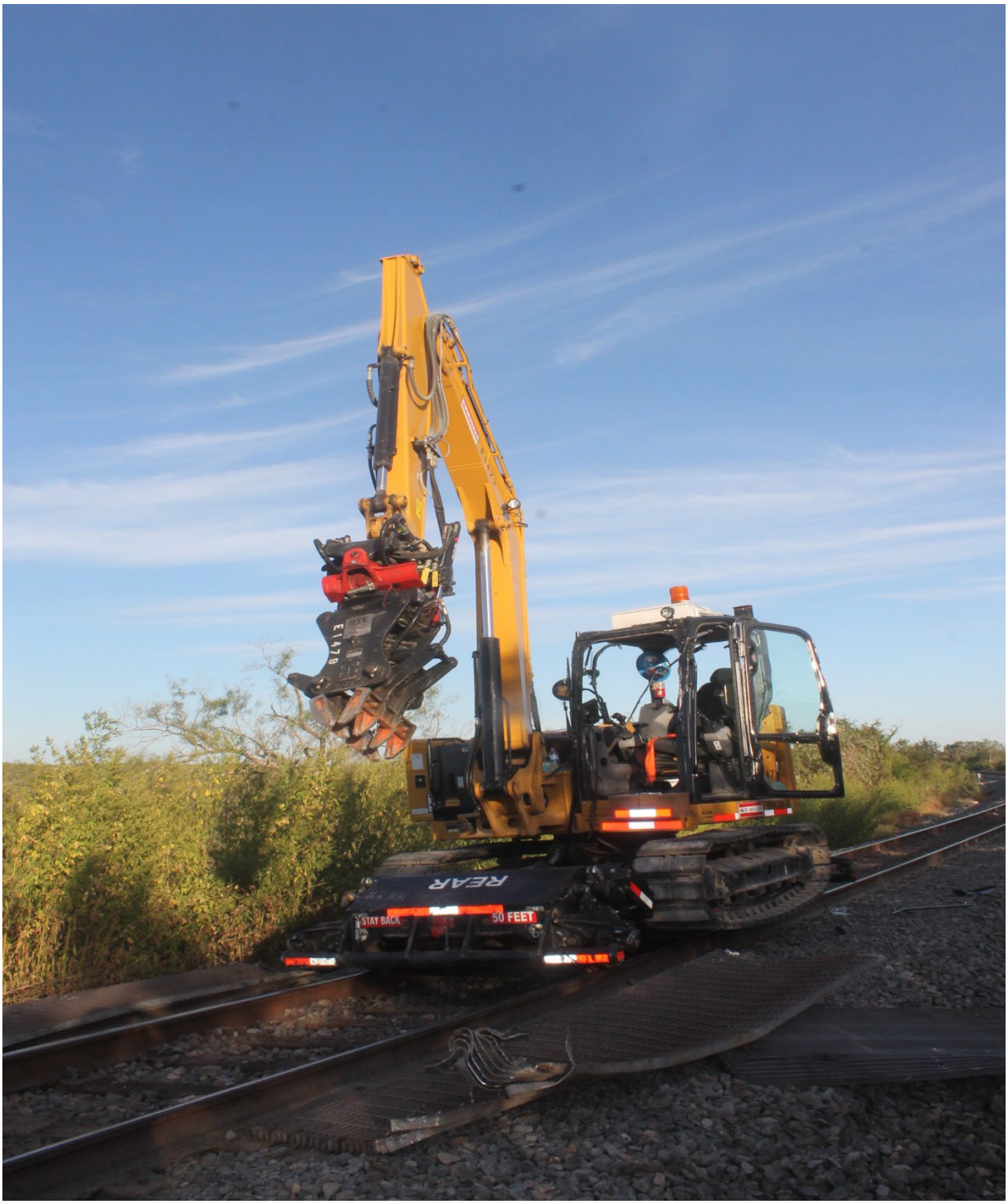

Figure 2- photo of the accident equipment at the accident site

Email to CAT Safety Representative

An email was sent to CATS Product Compliance and Support representative regarding the modifications by BTE to the CAT factory shipped machine configured for use on railroad tracks, and the usage of work tool attachments designed and built by BTE. The representative's reply was that any/all questions related to the integration/modification for usage of the machine on railroad track should be directed to BTE.

Postaccident Equipment Inspections

BTE conducted a postaccident mechanical inspection of the accident involved equipment. They found no mechanical issues with the machine including missing pins, safety stops, and boom connection and work head connections. BTE was able to conduct a leak and loss of pressure testing on the machines hydraulic system with no significant findings. BTE was unsuccessful in getting the machine operable in order to conduct electrical and on-board computer diagnostic testing due to the extreme damage to the inner-cab electrical components and equipment controls.

Site-Safety Specific Work Plans

A site-safety specific work plan (SSSWP) is essentially a written plan outlining the specific safety details a project. Each employee gains the safety benefits from an established SSSWP beforehand by knowing the details of the job, pertinent safety rules, and site hazard. SSSWP's should be completed for every construction project in order to outline the entire scope of work and exactly how you are going to keep employees safe. It should also outline the safety chain of command and assign responsibilities for safety management contacts. An SSSWP will usually have site-specific safety rules such as specific RWP rules to comply with, specific equipment

operations and safe usages of machinery, load/lifting plans, specific training guidelines, and hazard identification/mitigation processes. When investigators asked both the UP Senior Bridge Manager and the UP Bridge Supervisor if Union Pacific had developed an SSSWP for this particular project, they both answered no. Both stated that UP does not develop SSSWP's for these type of bridge rehabilitation projects.

Employee History

The fatally injured equipment operator was employed by W.T. Byler Company, Inc and worked as a contract employee for the Union Pacific Railroad. The employee began working for W.T. Byler as a heavy equipment operator on September 6, 2016, and remained in this position throughout his entire employment. The employee was stationed out of W.T. Byler's Houston, Texas office and was regularly requested by Union Pacific's bridge department to perform contract heavy equipment operations. Records show that the employee was properly trained on the CAT-308 mini-excavating machine by Ballast Tools and Equipment (BTE) on January 7, 2021 in accordance with FRA Part 214.357; Train and qualification for operators of roadway maintenance machines equipped with a crane/boom.

Employee Toxicology

The FRA conducted a postaccident drug and alcohol test following the accident, as required under 49 CFR Part 219. The results were negative for all substances tested, including ethanol.

Investigation of Cellphone Usage

WT Byler management personnel was contacted by the county medical examiner's office that a cellphone retrieved from the clothing of the deceased operator. WT Byler informed the ME's

office to ship the cellphone to their office, who in-return will notify the NTSB-IIC of the cellphone discovery. Once the cellphone was in possession with WT Byler, the NTSB-IIC was contacted where proper shipping instructions were proper in order to have the cellphone shipped to NTSB's Officer of Research and Engineering to have an investigative analysis of the cellphone. Once this investigative analysis is complete, the finding will be shared with the concerned parties, and placed in the docket for review.

FRA Reports

The NTSB was provided regulatory track inspection reports, rail flaw detection reports, and automated track inspection reports from the FRA. A review of these reports found no discrepancies in the accident curve that would have contributed to this accident. FRA also provided two reports of violations issued to both Union Pacific and WT Byler for the following:

1. allowing insufficiently trained workers to perform on-track bridge maintenance
2. failure to provide an on-track safety briefing to employees as per FRA Part 214.315

Interviews

Investigators conducted eight interview at the Union Pacific Texas Service Facility in San Antonino, Texas with the following Union Pacific and WT Byler employees.

- WT Byler Laborer No. 1:
    - Employee was hired in early June by WT Byler as a railroad laborer
    - Has roughly 3- months of work experience with WT Byler
    - Arrived at the worksite at 7:30 a.m.
    - Was instructed to assist in unbolting the steel walkway gratings from the bridge

structure

- Stated that he received a job safety briefing from a Union Pacific official before starting work.
- Stated that the equipment operator was not in attendance for the original job safety briefing, and does not know if the operator received a job safety briefing.
- Stated that he has not received any formal safety training regarding roadway worker protection and fall protection since being hired at WT Byler.
- Stated that when the accident occurred that he was clear from the track and was located in the clearing below the bridge. Stated that he did not witness the accident take place.

- WT Byler Laborer No. 2:
  - Was hired by WT Byler five days before the accident occurred (9/17/2021)
  - Arrived at the job site around 7:30 a.m.
  - Stated that seven guys were on the job site
  - Was instructed to assist in unbolting the steel walkway grates from the bridge structure
  - Stated that he receive a job safety briefing from the Union Pacific foreman
  - Stated that he had no questions regarding the job safety briefing that he received
  - Stated that the operator was not in attendance at the original job safety briefing
  - Stated that he did not see, nor speak to the operator
  - Stated that he was already clear from the track when the accident occurred and did not witness the accident.
- Union Pacific Bridge Foreman:

- Has worked with Union Pacific for 8 ½ years
- Worked in the track department for 1 ½ years. Been with the bridge department after that.
- Bumped in on the morning of the accident
- Stated that he did not conduct the job safety briefings
- Stated that the bumped foreman conducted the job safety briefings
- Did not know how many workers were present at the job safety briefing
- Stated that he has never used a tie crane to remove and transport steel walkway gratings
- Stated that he is up to date on his yearly training
- Stated that WT Byler employees are train accordingly

- Bumped Union Pacific Foreman:
  - Has been working with the Union Pacific for about 6 years
  - Stated that he has only worked one day as the bridge foreman on this project before getting bumped (displaced) by a more senior employee
  - Could not see where the steel walkway gratings were being staged from the bridge for transport
  - Stated that the Union Pacific foreman that bumped him conducted the job safety briefings, including the working limits
  - Stated that he had a conservation with the operator prior to any work being performed
  - Stated that he instructed the operator to mount his equipment to start the material movement process of the work

- Stated that he was clear of the track when the accident occurred and did not witness the accident take place
- Stated that after losing radio communication with the operator, him and a supervisor walked up the track to see if anything happened and found the equipment stopped in the middle of the track with the suspended load crashed through the front windshield
- Stated that emergency services were notified for the injured employee

- Union Pacific Supervisor:
  - Stated that he has worked about 13 years for the Union Pacific Railroad
  - All 13 years has been in the bridge department
  - Stated that he spent the day "putting out fires", problems with radio communications, track, and time issues
  - Stated that he arrived at the job site around 6:45 a.m.
  - Stated that he had no idea as to what was discussed during the initial job safety briefings
  - Stated that he talked with the operator prior to starting work
  - Does not know if the operator had a job safety briefing before starting with equipment work
  - Stated that after several failed radio transmissions with the operator, they walked up the track and discovered that the suspended load had crashed through the front windshield of the machine.

- Union Pacific Bridge Manager:
  - Hired with Union Pacific in 1988

- Stated that he has work all the positions in the bridge department
- Stated that he has work the bridge foreman job, 5 years as a bridge supervisor, and 5 years as the Senior Manager of Bridge Construction
- Stated that Union Pacific had no work plans, Site Safety Specific Work Plans, or Scope of Work plans for review with WT Byler prior to performing the bridge work
- Stated that it is not common to use this particular piece of equipment (tie crane) to remove and transport the steel walkway gratings.
- Stated that he has seen other operators use chains, slings, and other methods to move the material
- Stated that the operator was experienced in performing this work
- Stated that he did not witness that accident, and that the equipment was on the track with no one around when the accident occurred

- WT Byler Director of Safety:
  - Has worked with WT Byler for 35 years
  - Started as a ground up employee
  - Stated that WT Byler has over 650 employees
  - Stated that his job is to direct all the safety for the company, drug testing, ect…
  - Stated that WT Byler conducts new hire orientation
    - Safety training
    - Medical evaluation/physical
    - Drug/alcohol testing
    - Fall protection
    - Contractor safety

        - RWP
    - Stated that the managers assist him in assisting with other duties
        - Performing training
        - Work related training and testing
        - Medical evaluations
    - Stated that WT Byler's RWP train is FRA approved and provides this training to all employees
    - Stated that all employees must be trained before starting railroad work
    - Stated that multiple managers vet and confirm that employees are trained properly
    - WT Byler utilizes a contractor safety representative to for assistance in training
    - Has no written program for operator training- conducted by BTE
    - Stated that all employees must follow all Union Pacific job safety briefing rules, work instructions and procedures
    - Stated that UP does not provide an SSWP, SOW, or other work plans regarding bridge maintenance work
    - Stated that he was notified of the accident, and was not in the area when the accident occurred
- WT Byler Manager:
    - Has been with WT Byler since 1982
    - Worked as an operator for 16 years
    - Promoted to supervisor
    - Promoted to Manager of Railroad Division in 1998
    - Oversees the building/estimation of work and materials and construction activities

- Oversees 4- supervisors in the railroad division
- Assists the managers with safety training
- Stated that he was not in the area when the accident occurred
- Stated that UP does not provide SSWP's, SOW plans, or other safety plans when performing bridge maintenance work