



**NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF HIGHWAY SAFETY
WASHINGTON, D.C.**

**MOTOR CARRIER FACTORS GROUP CHAIRMAN'S
FACTUAL REPORT**

PHOENIX, ARIZONA – HWY21MH008

A. CRASH INFORMATION & CRASH SUMMARY

Refer to the *Crash Information and Crash Summary Report* in the docket for this investigation.

B. MOTOR CARRIER FACTORS GROUP

Michael S. Fox, Motor Carrier Factors Investigator, Group Chairman
NTSB Office of Highway Safety
490 L'Enfant Plaza East, S.W., Washington, DC 20594

Steven Nyboer, State Trooper
Arizona Department of Public Safety
2102 W. Encanto Blvd.
Phoenix, Arizona 85009

Steve Baxley, Senior Vice President of Operations
United Dairyman of Arizona
2008 S. Hardy Dr.
Tempe, Arizona 85282

John A. Contreras, Special Agent
Federal Motor Carrier Safety Administration
Arizona Division Office
400 E. Van Buren St., Suite 401
Phoenix, Arizona 85004

C. DETAILS OF THE MOTOR CARRIER FACTORS INVESTIGATION

This investigative report addresses the motor carrier operations of the Freightliner truck-tractor in combination with a Walker tank-trailer, involved in this crash, identified as Arizona Milk Transport Inc. This report documents the driving history, driver qualification, hours of service, drug and alcohol testing, and employment history of the Arizona Milk Transport driver. Additionally, this report will review the company history, operations and some of the policies and procedures of Arizona Milk Transport Inc. This report will briefly address the state and Federal

oversight of the motor carrier involved in this crash. This report will also discuss the United Dairymen of Arizona (UDA) and the state and Federal oversight of the milk industry.

1. Motor Carrier Operations

1.1. Arizona Milk Transport Inc.

The motor carrier of the Freightliner truck-tractor in combination with a Walker tank-trailer in this crash was identified as Arizona Milk Transport Inc. (AMT).¹ The Walker tank-trailer was owned by Shamrock Farms and was leased to United Dairymen of Arizona.² The carrier's principal place of business (PPOB) was located at: 2111 South Industrial Park Avenue, Tempe, Arizona. On June 11, 2021, NTSB investigators interviewed the President / CEO of AMT at the carrier's principal place of business. According to the Federal Motor Carrier Safety Administration (FMCSA) Motor Carrier Management Information System (MCMIS), Arizona Milk Transport (AMT) was issued USDOT number 1435950. The MCMIS database shows the carrier registered as a "For-Hire" intrastate non-hazardous material motor carrier. The carrier's MCMIS data shows the filing of the first MCS-150 was November 16, 2005.^{3, 4}

Because AMT transported milk, it qualified for the FMCSA Agricultural exemption which meant the carrier was not required to follow any Hours-of-Service requirements. Under the Federal Motor Carrier Safety Regulations (FMCSRs) under 49 CFR 395.1(k) the Agricultural (AG) hours-of-service (HOS) exemption covers any motor carrier transporting agricultural commodities or farm supplies to an eligible destination. The "Moving Ahead for Progress in the 21st Century Act (MAP-21) effective October 1, 2012, included exemptions that applied to agricultural transportation. The MAP-21 revision expanded the current 100 air-mile radius to 150 air-miles (172.6 statute miles) and made transportation from wholesalers to retailers eligible for the exemption.

¹ **Motor carrier** means a for-hire motor carrier or a private motor carrier. The term includes a motor carrier's agents, officers and representatives as well as employees responsible for hiring, supervising, training, assigning, or dispatching of drivers and employees concerned with the installation, inspection, and maintenance of motor vehicle equipment and/or accessories. A motor carrier is a person who owns, controls, operates, manages, or leases a commercial motor vehicle (CMV). **For-hire motor carrier** means a person engaged in the transportation of goods or passengers for compensation. **Commercial motor vehicle** means any self-propelled or towed motor vehicle used on a highway in interstate commerce to transport passengers or property when the vehicle -

- A. (1) Has a gross vehicle weight rating or gross combination weight rating, or gross vehicle weight or gross combination weight, of 4,536 kg (10,001 pounds) or more, whichever is greater; or
- B. (2) Is designed or used to transport more than 8 passengers (including the driver) for compensation; or
- C. (3) Is designed or used to transport more than 15 passengers, including the driver, and is not used to transport passengers for compensation; or
- D. (4) Is used in transporting material found by the Secretary of Transportation to be hazardous under [49 U.S.C. 5103](#) and transported in a quantity requiring placarding under regulations prescribed by the Secretary under 49 CFR, subtitle B, chapter I, subchapter C.

² For additional details, see Section 3.

³ See Motor Carrier Attachment: Arizona Milk Transport Inc. MCS-150.

⁴ Every motor carrier and intermodal equipment provider must file a Motor Carrier Identification Report, Form MCS-150 with FMCSA. For additional information see: [eCFR :: 49 CFR Part 390 -- Federal Motor Carrier Safety Regulations; General](#)

MAP-21 provided a new exemption from many of the Federal Motor Carrier Safety Regulations for operators of “covered farm vehicles” (CFVs). The new definition of a CFV to be found in §390.5 included a variety of conditions and limitations involving the size of the vehicle, hauling distance from the farm or ranch, and cargo being transported. Perhaps most important, CFV operators must be farmers or ranchers, their families, and employees.^{5, 6}

The following outlines the provisions for the AG exemption:

- 49 CFR § 395.1(k) provides exemptions from the HOS rules, during planting and harvesting periods as determined by the State, for the transportation of agricultural commodities (including livestock, bees, horses, fish used for food, and other commodities that meet the definition of “agricultural commodity” under § 395.2) within a 150 air-mile radius from the source of the commodities. The exemption also applies to the transport of farm supplies for agricultural purposes shipped from either a wholesale or retail distribution point to the location the supplies will be used or from a wholesale distribution point to a retailer.
- The HOS regulations do not apply to the transportation of agricultural commodities operating completely within the 150 air-mile radius by for hire or private carriers. Therefore, work and driving hours are not limited and the driver is also not required to use an Electronic Logging Device (ELD) or keep paper logs. In an operation where a driver uses a vehicle equipped with an ELD, a driver that is exempt can use an “Exempt Driver” account or annotate the time as exempt ag operation.
- Once a driver operates beyond the 150 air-mile radius, the HOS regulations apply. Therefore, starting at the time and location where the transporter goes past the 150 air-mile radius, the driver must maintain logs using an ELD, unless the driver or the vehicle meets one of the limited ELD exemptions. The driver must work and drive within the limitations of the HOS rules when operating beyond the 150 air-mile radius. Time spent working within the 150 air-mile radius does not count toward the driver’s daily and weekly limits. That radius is calculated as 150 air-miles—or 172.6 statute miles—from the source, which is the pickup point for the commodity.⁷

⁵ Retrieved from: [How can the MAP-21 “Transportation of Agricultural Commodities” exemptions be summarized? | Federal Motor Carrier Safety Administration \(dot.gov\)](#)

⁶ The original exemption for agricultural vehicles is first mentioned in the Motor Carrier Act of 1935, for additional information see: [history of trucking regulation 1935 to 1980.pdf \(gkglaw.com\)](#)

⁷ Motor carriers that fall under this exemption are not required to carry documentation showing that they are exempt during roadside inspections. The burden of proof can be demonstrated to the roadside inspector by the bills of lading that documents the commodity being transported. For additional information see Motor Carrier Attachment - FMCSA email dated August 23, 2022 and February 6, 2023.

1.2. Carrier History

AMT started operations in 2005 with three trucks and obtained the current USDOT number.⁸ The carrier operated exclusively in intrastate commerce and picked up and delivered raw milk within a 100 air-radius of the Phoenix metropolitan area. The carrier has maintained the same business model since 2005. According to the CEO, AMT was under contract to transport raw milk exclusively for the United Dairymen of Arizona. Further discussion of UDA is in **Section 4**.

1.3. Arizona Milk Transport Fleet and Drivers

At the time of the crash, the carrier owned 26 truck-tractors and employed 35 CDL drivers. The carrier also owned one Ford F350 and two Ford F250s. All the carrier's truck-tractors including the truck-tractor involved in this crash were day cabs (non-sleeper berth). The carrier did not own any trailers. The tank-trailer involved in this crash was owned by Shamrock Dairy Farms and was under lease to the UDA.⁹ All of the tank-trailers used in the daily operations were either owned by the UDA or owned by a local farm and leased to UDA.

1.4. Hiring Practices

The carrier recruited drivers with signs posted on the front entrance, by word of mouth, and advertising on the company website: www.ArizonaMilkTransport.com. The carrier had established the hiring practices and used the minimum qualification standards for hiring drivers suggested by the AMT's insurance provider, Great West Casualty Company, that included the following requirements:¹⁰

- Meet all Federal Motor Carrier Qualifications that included but not limited to Federal Motor Carrier Safety Regulation Part 391.
- Hold a valid CDL with proper endorsements in the state of residence and have no current license suspension or revocation. A work permit is never acceptable.
- No convictions for a "serious or disqualifying traffic violation" within the last three years.¹¹
- No driving while intoxicated or under the influence of drugs violation within the past five years.
- No more than four moving violations in the past 36 months, and no more than two moving violations in the previous 12 months.

⁸ For additional information on AMT see: [About Us | Arizona Milk Transport, Inc.](#)

⁹ See Motor Carrier Attachment: Lease agreement between Shamrock Dairy and UDA.

¹⁰ Great West Casualty Company provides commercial insurance for the trucking industry and was the liability insurance carrier for AMT. For additional information see: [About | Great West Casualty Company \(gwccnet.com\)](#)

¹¹ Serious or disqualifying traffic violation includes excessive speeding involving any single offense for any speed of 15 mph or more above the posted speed limit. Reckless driving as defined by state or local law or regulation, including by not limited to the offense of driving a motor vehicle in willful or wanton disregard for the safety of persons or property. Improper or erratic lane changes, following the vehicle ahead too closely, Hit and run, violating a state or local law or ordinance prohibiting texting while driving a motor vehicle, violating a state or local law or ordinance restricting or prohibiting the use of hand-held mobile device while driving, no driving while intoxicated or under the influence of drugs violation within the past five years.

- Have no preventable accidents involving a fatality, bodily injuries treated away from the scene, or disabling damage to a motor vehicle within three years.
- Have a minimum of two years' experience in the operation of the type of vehicle to be operated.
- Must be 23 years old or older.

1.5. Training Program

After new drivers were selected, they underwent a 4-day training program with the General. The training program included watching safety videos, and hands-on experience loading and unloading cargo tanks at the dairy farms and plants. All drivers were also required to hold milk testing qualifications that was annually certified by the state of Arizona.¹² Each driver received a pocket-size copy of the Federal Motor Carrier Safety Regulations (FMCSRs). According to the carrier's files, the crash-involved driver's qualification (DQ) file contained the following policy documents:¹³

- Signed acknowledgment of watching safety video
- Signed form for AMT drug and alcohol testing policy
- Signed FMCSRs Acceptance Form
- Signed form acknowledging driver's responsibility for medical card renewal
- Signed form for AMT Safety /Conduct Policy

1.6. Company Safety Culture

At the time of the crash, AMT's safety culture was guided by the *Arizona Milk Transport Safety/Conduct Policy* that was last revised May 10, 2018.¹⁴ The 24-page policy provided guidance for items that included: safety compliance, accident reporting, hours of service, time sheets, safety awards, vehicle inspections, defensive driving, and other specific company policies. The last page of the policy under "Appendix A" was a driver notification letter that acknowledged that the driver had received a copy and read the policy. The carrier produced a copy of this acknowledgement signed by the crash-involved driver that was signed on January 28, 2013.¹⁵ The AMT Safety/Conduct policy did not have a stand-alone fatigue policy. Several of topics from the AMT Safety / Conduct policy are highlighted in the following sections.

Safety Compliance: The AMT Safety / Conduct policy stated that compliance with the Federal and state laws are: "an important aspect of Arizona Milk Transport's success and professionalism." It further stated that: "if an employee is found to be violating safe work practices or procedures, the supervisor was responsible for disciplining the employee and reinforcing the

¹² Before milk leaves the farm, the truck driver takes a sample of milk to test for impurities, such as antibiotic residues. If any impurities are detected, the entire tank of milk is immediately discarded.

¹³ See Motor Carrier Attachment: Training Records for Crash-Involved Driver.

¹⁴ See Motor Carrier Attachment: Arizona Milk Transport Safety Conduct Policy.

¹⁵ See Motor Carrier Attachment: Driver Notification Letter signed 1/28/2013.

correct safe behavior or activity.” It also stated that discipline may range from a verbal reprimand up to and including termination.

General: The AMT Safety /Conduct policy stated the following: “most of the federal regulations apply to Interstate commerce (except the CDL license and alcohol and drug testing) but all of the states have written state laws which parallel the federal. It is the position of this policy to follow federal regulations in all of our activities unless a specific local or state law is more stringent, or an operational exception have been made by management.” Unless otherwise stated, the policy shall apply to any person who operates an Arizona Milk Transport Inc. vehicle on a public highway or street.

Safety Awards: The carrier had a safety awards program that was awarded quarterly for full time drivers. These awards were presented if a full-time driver (averaging 40 hours per week for the quarter) met the following conditions

- Not involved in any preventable accidents where the property damage exceeds \$200.
- Neither he/ she nor the vehicle is placed out of service for any defect during a roadside inspection.
- Have no critical hours of service violations as described above.¹⁶

In addition to quarterly safety awards, at the end of each year, drivers could also receive a safety bonus if they met the criteria stated above and met the following conditions:

- Did not receive any moving violations or suspensions that show on a motor vehicle report (MVR).
- Been available for work for at least 50 weeks.
- Not had any customer complaints reported that were a result of a driver error.

Maintaining Proper Duty Status Records: The AMT Safety/Conduct policy also had a section on “Driver’s Record of Duty Status.” This section stated that there are four classifications of duty status: off-duty, sleeper berth, driving, and on duty not driving. The section further stated: “drivers who can meet all of the below conditions can switch to the time sheet ‘record of duty’ for any given day.” The policy also stated that time records must have a start time, end time and total hours for each day recorded. The original 7 days must be turned in with any individual applicable log sheets at the end of each pay period. Note: a log page must be completed and turned in for every day for which any of the following conditions are met:

1. The driver operates within 100 air-radius of the normal work reporting location;
2. The driver returns to his work reporting location and is released from work within twelve consecutive hours;

¹⁶ It should be noted the carrier followed the Agricultural exemption and was exempt from HOS requirements during roadside inspection.

3. At least ten consecutive hours off duty separate each 12 hours on duty;
4. The driver does not exceed 11 hours maximum driving time following eight consecutive hours off duty.

It should be noted that the AMT Safety /Conduct policy was last updated on May 10, 2018 and had not reflected the Federal regulatory change that was adopted for short haul exemption under 49 CFR 395.1(e) that allowed a driver to operate within 150 air-radius miles.¹⁷ Additionally, the AMT Safety/Conduct policy provided no explanation or guidance of the AG exemption under 49 CFR 395.1(k).

11-14-60 Hours-of-Service: The AMT Safety / Conduct policy stated: “The DOT has established three basic rules designed to control driver fatigue. 11-Hour Rule, after having at least ten consecutive hours off duty, a driver cannot drive more than 11 hours. 14-Hour Rule, a driver cannot continue to drive after being on-duty for 14 consecutive hours after coming on-duty following ten consecutive hours off duty. The driver may continue to work after 14 hours on duty, provided he does not driver again until taking ten consecutive hours off duty.”

60-Hour Maximum On-Duty Rule: The AMT policy stated the following for the 60-hour rule: a driver cannot drive after accumulating 60 hours on duty, (combination of driving and on duty, not driving time) in any seven consecutive day period. The driver may continue to work, but cannot drive until having hours available within the 60 hour rule. The driver may reset his / her accumulated hours to zero following 34-hour consecutive hours off duty. Remember the hours-of-service rules are used to prevent serious accidents caused by driver fatigue. Please realize that the driver fatigue threatens:

1. Driver’s own life and livelihood.
2. The safety of the motoring public.
3. The safe arrival of the vehicle being transported.

It should be noted that under 49 CFR 395.3 Maximum Driving Time for property carrying vehicles, if a motor carrier operates every day of the week, they must follow the 70-hour rule which states that a driver would be prohibited from driving a CMV having been on duty 70 hours in any period of 8 consecutive days. Although the carrier had the 60-hour rule as a policy, it would not be applicable for AMT’s operation since they operated every day of the week. Furthermore, as previously mentioned, the carrier was following the AG exemption and was not required to follow any HOS requirements under 49 CFR 395.

Log Violations: The AMT Safety /Conduct Policy had the following statement concerning logbook or time sheet violations:

Driver’s daily logs are a necessary tool in monitoring fatigue and help Arizona Milk Transport and its drivers maintain a safe and legal operation on public roadways.

¹⁷ Short Haul Exemption -A driver is exempt from the requirements of §395.8 and §395.11 if: the driver operates within a 150 air-mile radius of the normal work reporting location, and the driver does not exceed a maximum duty period of 14 hours. Drivers using the short-haul exemption in §395.1(e)(1) must report and return to the normal work reporting location within 14 consecutive hours and stay within a 150 air-mile radius of the work reporting location.

Log compliance is legally required by federal and state agencies and is monitored by Arizona Milk Transport. Driver's logs will be audited at the end of every pay period. Drivers should keep a copy of each log or timesheet for at least one year, and in cases seven years for the IRS. After auditing, the supervisor will file the log or time sheets and notify each driver of log violations if any. Supervisors and drivers will sign the log violation report and return it to the Arizona Milk Transport office within two weeks. Drivers who do not maintain compliance with federal and state regulations as well as Arizona milk transports company policies will be subject to disciplinary action.

It should be noted that AMT drivers were following the AG exemption and were not subject to logbooks or any requirements under 49 CFR 395.

1.7. Drug and alcohol Testing Program

The carrier had an established drug and alcohol testing program. The carrier provided copies of their annual drug and alcohol testing for the past four quarters. The AMT drug testing program met the regulatory requirements under 49 CFR 382.305. The crash-involved driver submitted to post-accident drug and alcohol tests which were both negative. The carrier also had on file an inquiry into the FMCSA Drug and Alcohol Clearinghouse for the crash-involved driver dated February 11, 2021, which were negative for any positive drug tests.¹⁸

2. Arizona Milk Transport (AMT) Driver

2.1. AMT Driver Driving History

The 47-year-old driver of Freightliner truck-tractor and tank-trailer involved in this crash first obtained his CDL in February 2000 after attending a California Truck Driving school. At the time of the crash the driver held a valid Arizona Class A CDL, with an issue date of April 2021 and expiration date of April 2026. The driver held the following endorsements: doubles/triples and tank. The CDL shows one restriction for corrective lenses. The driver's application indicated the driver had previously held a California and Texas Class A CDL.

2.2. AMT Driver's Driver Qualification File

The carrier had a DQ file for the crash-involved driver. The DQ file contained a driver application, annual review of violations, medical certification, background check, and inquires to previous employers. At the time of the crash, the driver held a valid 2-year medical certificate with an issue date of August 2020 and expiration date of August 2022. The DOT certified medical examiner was identified with FMCSA Medical Examiner Registry Number 8249600872. A query to the FMCSA National Medical Registry indicated the medical examiner was a certified medical examiner.¹⁹

¹⁸ The Federal Motor Carrier Administration (FMCSA) established the Commercial Driver's License (CDL) Drug and Alcohol Clearinghouse (Clearinghouse). This new database contains information pertaining to violations of the U.S. Department of Transportation (DOT) controlled substances (drug) and alcohol testing program for holders of CDLs. For additional information see: [Commercial Driver's License Drug and Alcohol Clearinghouse | FMCSA \(dot.gov\)](https://www.fmcса.gov/clearinghouse).

¹⁹ For additional information see: [National Registry of Certified Medical Examiners | FMCSA \(dot.gov\)](https://www.fmcса.gov/registry)

2.3. AMT Driver’s Employment History

Carrier records indicated the driver started employment on November 12, 2008. The driver had held a commercial driving position since 1999 and worked in the trucking industry since then.²⁰ According to the driver’s statement and employment application, he held five previous commercial driver positions before starting at AMT.²¹ A summary of the drivers work history can be found in **Table 1**.

Table 1. Arizona Milk Transport Driver Employment History

Dates of Employment	Company	Position	Reason for Leaving
11/12/2008 -	Arizona Milk Transport	Commercial Driver	Still employed
4/2005 - 8/2008	Arizona Materials	Commercial Driver	Laid Off
8/2004 - 4/2005	Chandler Ready Mix Concrete	Commercial Driver	Out of business
2/2003- 7/2004	Superior Ready Mix	Commercial Driver	Moved to AZ
2/2000 – 11/2002	Allied Concrete Materials	Commercial Driver	Moved to CA
6/1999 – 2/2000	Pioneer Concrete	Commercial Driver ²²	Out of business

2.4. AMT Crash-Involved Driver’s Hours of Service

According to the AMT CEO all of the milk routes were within the 150-air mile radius and as such followed the FMCSA Hours-of-Service Agricultural (AG) exemption and under 49 CFR §395.1(k) drivers who meet the AG exemption definition are exempt from the requirements of recording hours of service.²³ For example, work time and driving hours are not limited and drivers are not required to use an Electronic Logging Device (ELD) or keep paper logs. As such, drivers who fall under the AG exemption are not subject to any requirements of driving time or record keeping.

Although the carrier followed the AG exemption, the company required their drivers to maintain record of hours on the company time sheet. Time sheets were to be recorded for everyday within the pay period, regardless of whether or not a driver has driven a vehicle, plus time recorded for the seven previous days.²⁴ Additionally, the time sheet had instructions that stated: “drivers log sheet required for any day exceeding 12 hours.” For additional information see **Figure 1**.

²⁰ The crash-involved driver started operating non-CDL equipment while employed at Pioneer Concrete.

²¹ See Motor Carrier Attachment: AMT Driver Application for Employment.

²² The crash- involved driver was operating non-CDL equipment at this time.

²³ Retrieved from: [eCFR : 49 CFR Part 395 -- Hours of Service of Drivers](#)

²⁴ See Motor Carrier Attachment: Arizona Milk Transport Safety Conduct Policy, page 6.

Name: CESAR F FRANCO GAVONE Pay Period: 06/05/2021
(Month/Day)

7-Day Recap	Date:	05/08	05/09	05/10	05/11	05/12	05/13	05/14	05/15
	Hours:	9	12	12	12	12	12	10	9

(Driver's log sheet required for any day which exceed 12 hours)

Payroll Date	Truck No.	Route Numbers	Pre-trip Inspection	Start Time	Start Date	Finish Time	Finish Date	Total Hours	# of loads Milk	# of loads Cream
05/16	57	F386, F320, F350	✓	11:00	05/16	23:00	05/16	12	3	

Figure 1. Crash-involved driver's time record.

It should be noted that the AMT Safety / Conduct policy manual did not state or explain the AG exemption or its application. During the interview with the carrier, NTSB investigators asked the CEO why did she require her drivers to fill out time sheets if they were following the agriculture exemption? The CEO responded: "because we want our drivers to have a life and to be safe."²⁵ It should be noted that the carrier had an employee time clock in the dispatch office but did not require their drivers to use it. The carrier stated the time clock was used for only for their mechanics.

2.4.1. Reconstruction of Driver's Hours of Service

The crash-involved driver's time sheets and other documents were consumed in the post-crash fire. After the crash, the carrier requested the driver rewrite his Hours-of-Service (HOS) timesheet from June 1, 2021, to the date of the crash which was provided to NTSB investigators. The carrier also provided the crash-involved driver's last 30 days of bills of lading and time records to investigators. On June 11, 2021, NTSB and Arizona Department of Public Safety (AZDPS) investigators interviewed the AMT driver.²⁶ The crash-involved driver told investigators that he was assigned the evening / night shift and typically worked approximately between 2pm to 2am.

To aid in the reconstruction the driver's hour of service, NTSB investigators obtained the building security camera video footage for AMT's PPOB for the 7 days prior the crash. Investigators used the security video, in addition to bills of lading, fuel logs, and weight scale tickets to reconstruct the driver's hours-of-service. **Figure 2** is a screen shot of the video footage from the exterior security camera showing the driver arriving for work with the date and time stamped in the upper right corner of the screen shot is an example of how the security video recorded footage was used to aid investigators re-create duty hours.

²⁵ See Motor Carrier Attachment: AMT CEO and GM Interview 7/29/2021.

²⁶ See Motor Carrier Attachment: AMT Crash Involved Driver Interview 6/11/ 2021.



Figure 2. Screen shot of AMT Security video camera footage showing crash-involved driver walking towards the dispatch office on 6/07/2021.

The video was analyzed by the NTSB Vehicle Recorders Division and determined the videos time stamps did not reflect accurate local time. The NTSB Vehicle Recorders Division used a video forensic software to determine the actual timestamps for the video footage to document the crash-involved driver’s activities.²⁷ For additional information concerning the video analysis see the *NTSB Security Video-Time Correlation Factual Report* in the docket.

Investigators determined that the crash-involved driver worked 50.12 hours in the 5 days leading up to the crash. A summary of the driver’s 72-hour history prior to the crash is documented in **Table 2**.²⁸

Table 2. AMT Driver - 72 Hour History Reflecting Corrected Time Stamps

Date	Start Time	End Time	Total Hours
June 6, 2021	11:17	01:16	13:59
June 7, 2021	13:08	03:02	13:54
June 8, 2021	13:56	04:24	14:28
June 9, 2021	14:16	22:07 (crash)	7:51
		Total Hours	50:12

²⁷ See Motor Carrier Attachment: AMT Security Camera Video Review.

²⁸ The crash-involved driver worked evening shift, with the start of his shift between 11am and 2pm and ended his shift in around 2am and 5am. The end times stated in the Table 2 and 3 reflect end times that were on the following day.

It should be noted although the driver was exempt from the hours-of-service rules, some of the weeks the driver drove over the 70-hour mark. Additionally, the driver recorded on his time record that he “worked day off” and recorded “3+1” loads of milk.^{29, 30} A summary of the weeks reviewed in comparison with non-exempt short haul requirements and AMT HOS policies are documented in **Table 3**.

Table 3. AMT Driver’s HOS

Crash driver’s work dates and hours			HOS requirements for non-exempt short haulers		AMT Policies		
Date Range	Hours	Days worked (max hours)	> 14 hour day workshift		> 12 hour day workshift	> 60 hours in 7 days	
5/16-22, 2021	83:13	6	1		6	2	
5/23-29, 2021	77:21	6	1		3	2	
5/30-6/5, 2021	63:35	6	0		0	0	
6/6-6/9, 2021	50:12	3	0		0	0	

A review of the driver’s time sheet showed numerous inconsistencies in comparison to the time stamped documents as well as the video evidence. Multiple time stamped documents indicated that the start and stop times did not match the driver’s time sheet. For example, the driver wrote 11:00 a.m. as the start time and 11:00 p.m. as the stop time for every day worked in May 2021. Time stamped documents indicated that the driver typically started his shift between 1pm and 3pm. Another example shows, the driver recorded finish time on May 21 at 11:00 p.m. but a weigh scale ticket driver showed the driver “in-time” (on-duty) at 3:37 a.m. and departing time “out-time” (on-duty) at 05:43 a.m. on May 22, 2021. See **Figure 3** for more details.

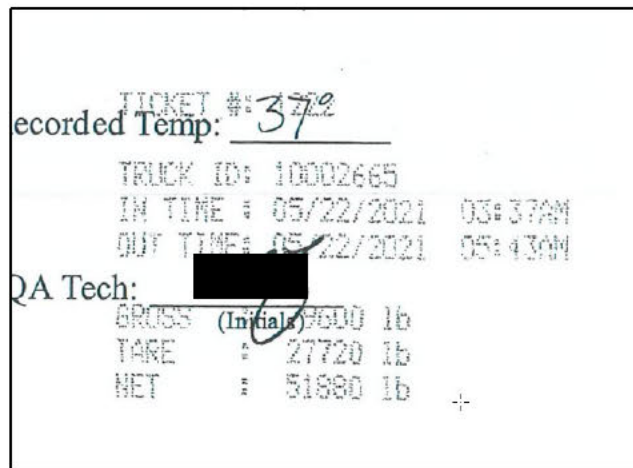


Figure 3. Scale Ticket for Crash-Involved Driver

²⁹ See Motor Carrier Attachment: AMT Crash-Involved Driver Time Sheets and Reconstructed Hours.

³⁰ See Motor Carrier Attachment: AMT Crash-Involved Driver Bills of Lading.

2.5. Overtime Pay

AMT drivers were paid overtime for wait time incurred at the UDA plant. AMT paid the overtime pay if a driver was delayed (wait time) beyond 90 minutes. According to the time sheets, the crash-involved driver had 470 minutes of wait time recorded for the month of May 2021.³¹

2.6. Additional AMT Drivers HOS Review

NTSB investigators randomly selected five additional AMT drivers to review HOS. Two of the five randomly selected drivers had work week in excess of 70 hours. One of the drivers had worked 84 hours in one week. For additional information for these two drivers (referred to as driver A and driver B) see **Tables 4-5**.

Table 4. Driver A Hours-of-Service

Date Range	Hours
May 1 – May 6	36 hours
May 8- May 13	71 hours
May 15- May 21	84 hours
May 23- May 27	60 hours
May 29- May 31	36 hours

Table 5. Driver B Hours- of- Service

Date Range	Hours
June 3-June 8	75 hours
June 10 – June 15	70.5 hours
June 17 – June 22	73.5 hours
June 24- June 29	71 hours

Four of the five randomly selected drivers had written the same start and stop time on their time sheets for each day worked. A review of the time stamped records indicated start and stop times for these four drivers that did not correspond.³² Two drivers of the four drivers had time records that differed by 1 hour or more from their time sheets. It should be noted that the additional driver's time sheets included edits by the motor carrier.

2.7. 392.3 Ill or fatigued operator

It should be noted that the Federal regulations prohibit commercial drivers from operating a CMV if the driver is ill or fatigued. The regulation states “No driver shall operate a commercial motor vehicle, and a motor carrier shall not require or permit a driver to operate a commercial motor vehicle, while the driver's ability or alertness is so impaired, or so likely to become impaired, through fatigue, illness, or any other cause, as to make it unsafe for him/her to begin or continue to operate the commercial motor vehicle. However, in a case of grave emergency where the hazard to occupants of the commercial motor vehicle or other users of the highway would be increased

³¹ See Motor Carrier Attachment: Crash Involved Driver Time Sheets and Reconstructed Hours.

³² See Motor Carrier Attachment- Additional AMT Driver Time Sheets.

by compliance with this section, the driver may continue to operate the commercial motor vehicle to the nearest place at which that hazard is removed.”

3. State of Arizona Oversight of Motor Carriers

The following outlines the State of Arizona oversight for commercial motor vehicles. AZDPS is charged by state law (ARS28-5204) with enforcing rules and regulations governing the safety operations of motor carriers, shippers and vehicles transporting hazardous materials. AZDPS is also designated as the Motor Carrier Safety Assistance Program (MCSAP) Lead Agency. AZDPS Commercial Vehicle Enforcement (CVE) districts are located throughout the state and the troopers assigned to those districts promote highway safety through auditing, education, inspection and enforcement operations as required by state law, the FMCSR’s and the Federal Hazardous Material Regulations.³³ The AZDPS has adopted the FMCSRs under State Regulation R17-5-202.³⁴

In partnership with the FMCSA and the Commercial Vehicle Safety Alliance (CVSA), every CVE trooper receives extensive training and subsequent certification prior to conducting commercial vehicle enforcement operations. Federal partnership ensures that the regulations are uniformly enforced throughout the United States. CVE troopers and professional staff conduct the following activities:

- Administer the state regulations governing tow trucks, school buses, and school bus drivers.
- Inspect commercial motor vehicles (CMVs), school buses, and tow trucks to ensure compliance with applicable laws and regulations.
- Conduct Compliance Review investigations of CMV carrier companies.
- Provide CMV inspector certification training for agencies from around the country as partners in the FMCSA’s National Training Center (NTC) instructor program.
- Engage in public outreach with programs and events focused on safe driving by both CMVs and non-CMV’s alike.
- Investigate moving company complaints and enforce FMCSA Household Goods Regulations.
- Complete New Entrant Safety Audits.
- Certify new school bus drivers and school bus driver instructors, while overseeing the continuing certification of existing drivers and instructors.

The AZDPS conducts inspections and Compliance Reviews (CR) for intrastate motor carriers. Prior to this crash the DPS had not conducted any other CRs on AMT. As a result of this

³³ See: [Commercial Vehicle Enforcement \(CVE\) | Arizona Department of Public Safety \(azdps.gov\)](https://www.azdps.gov/commercial-vehicle-enforcement-cve)

³⁴ AZ State Code: R17-5-202. Motor Carrier Safety: Incorporation of Federal Regulations; Applicability A. The Department incorporates by reference 49 CFR 40, 379, 382, 383, 385, 390, 391, 392, 393, 395, 396, 397, and 399, revised as of October 1, 2012, and no later amendments or editions, as amended under this Article. The incorporated material is on file with the Department and is available from the U.S. Government Printing Office, P.O. Box 979050, St. Louis, Missouri 63197-9000.

crash the AZDPS initiated a CR. The CR did not identify any (zero) violations and resulted in a “None Rated” Safety Rating.^{35, 36}

3.1. AZDPS HOS Review

The AZDPS conducted a post-crash compliance review (CR) on AMT. During the CR, investigators reviewed six drivers, including one driver who had worked over 70 hours. The driver is referred to as Driver C, see **Table 6** for additional information. The times noted were taken from the driver’s time sheets. It should be noted that bills of lading and other supporting documents were not used during the review for this sample size of drivers by AZDPS.

Table 6. Driver C Hours-of-Service May 2021

Date Range	Hours
May 1	10.5
May 4-8	58.25
May 10-15	70.5
May 18-22	56
May 26-29	57.25
May 31	11.5

3.1. Lytx DriveCam System

The AMT truck-tractor was equipped with a Lytx DriveCam forward and inward facing camera.³⁷ Lytx® DriveCam is a telematics system with two cameras, one of which records the road and the other the driver. The Lytx DriveCam event recorder device mounts to a vehicle's windshield and is set up to record the road ahead and inside of the vehicle. At the time of the crash, the installed system was a DC3P camera.³⁸ The NTSB subpoenaed AMT and Lytx for DriveCam® records for all AMT drivers for the calendar year 2021. The records received from Lytx and AMT were identical. The obtained records listed all exception-based video safety events recorded by the

³⁵ See Motor Carrier Attachment: Arizona Department of Public Safety Compliance Review, dated 8/09/21.

³⁶ The FMCSA issues *Safety ratings*.

- A. (1) *Satisfactory safety rating* means that a motor carrier has in place and functioning adequate safety management controls to meet the safety fitness standard prescribed in [§ 385.5](#). Safety management controls are adequate if they are appropriate for the size and type of operation of the particular motor carrier.
- B. (2) *Conditional safety rating* means a motor carrier does not have adequate safety management controls in place to ensure compliance with the safety fitness standard that could result in occurrences listed in [§ 385.5 \(a\)](#) through [\(k\)](#).
- C. (3) *Unsatisfactory safety rating* means a motor carrier does not have adequate safety management controls in place to ensure compliance with the safety fitness standard which has resulted in occurrences listed in [§ 385.5 \(a\)](#) through [\(k\)](#).
- D. (4) *Unrated carrier* means that a safety rating has not been assigned to the motor carrier by the FMCSA.

³⁷ AMT’s original contract with Lytx was signed February 19, 2015, for a base subscription fee without installation for 19 DriveCam ONE (DC3P) units under an insurance company (Crum & Forster) program subsidy). See Motor Carrier Attachment: AMT and Lytx DriveCam Information. On April 22, 2013 - DriveCam, Inc., a global risk management company, announced that Crum & Forster (“C&F”), a national insurance group, would offer DriveCam managed services to its policyholders as part of C&F’s loss control / safety management services. The announcement was made at the Risk Management Society's (RIMS) 2013 Annual Conference and Exhibition. See [Crum & Forster Signs Strategic Partnership Agreement with DriveCam | Business Wire](#) and [Risk Engineering - Crum & Forster \(cfins.com\)](#)

³⁸ See Motor Carrier Attachment: AMT and Lytx DriveCam Information.

DriveCam device, sorted by truck-tractor identification number and driver's name if assigned. Each event, at a minimum, also contained the time of the event and a description of the activity that triggered the event. For example, events could be triggered by numerous factors such as hard braking, rolling a stop, following too closely (less than 1 second, or between 1 and 2 seconds), and departing a lane.

For the DriveCam equipment installed in the Freightliner at the time of the crash, per Lytx, when an event was triggered by an accelerometer (i.e. hard braking) during the human review (such as AMT management) of the video clip, if a cellphone was observed it would be marked. For the DC3P model device, a cellphone could not be detected by the technology that is now currently available in the newer Lytx video event recorders (VERs) that can identify cellphone use and can trigger video event clips by a driver's use of a cell phone. Each video clip includes the moments before and after a risky driving event occurs. When the Lytx DriveCam camera is triggered to record, lights flash to notify the driver of the recording. In addition, drivers can manually capture video when needed.

The AMT DriveCam units were older models that operated on a 3G cellular connection network and according to Lytx, had more limited safety features. The DriveCam device would capture an "exception-based video event" and it would be marked as potentially risky behavior (such as hard braking) and the video would be sent to the Lytx Cloud via cellular connection.³⁹ Lytx would analyze the event in the video and tag identified risky behaviors. Then the event would be prioritized and delivered to the AMT account in the Lytx web-based portal. The exception-based video event would be marked for coaching and AMT would be responsible to access their account on the Lytx portal to review the exception-based video and resolve the event such as through coaching of the involved driver.

In 2021, cellular network providers announced the expected shutdown of 3G cellular networks in 2022. As a result, any device operating on a 3G cellular connection (which AMT's DriveCam units were) would be affected by the shutdown of 3G cellular services. By the end of 2021, Lytx required all subscribers with 3G DriveCam recorders be upgraded to maintain service with Lytx. Because of this, AMT (prior to the crash) signed a subscription service contract on 5/11/2021 (contract to begin on 10/1/2021), to include an upgrade of 26 DriveCam units.⁴⁰ The new AMT contract upgraded the Lytx service from the Driver Safety Program, Alliance Plus (Legacy) (in effect at the time of the crash on June 9, 2021) to Driver Safety Program, SF300 Alliance Plus on October 1, 2021. The upgrade would include the replacement of the DC3P video event recorder systems to the SF300 LTE North America units (ER-SF300-0027U).

As a subscriber client to Lytx, AMT had remote access to Lytx's data center via in-bound internet connectivity, providing access to AMT (client) data and the hosted software applications in order to view and download driving videos captured by AMT's video event recorders, and any related reports and assessments provided by Lytx, to the extent purchased in AMT's subscriber contract for the Driver Safety Program. AMT had access to recorded events with the Driver Safety

³⁹ According to Lytx, configurable triggers for an inside view camera could include use of a handheld cellular device, no seat belt, driver smoking, food or drink, or inattentive. The configurable trigger for the forward-facing or other DriveCam camera units (referred to as Road View) could include a rolling stop, lane departure, following distance, and critical distance. The units can also be configured for a Speeding Alert. See [lytx.com/SFER](https://www.lytx.com/SFER).

Program.⁴¹ According to Lytx, AMT did upgrade their DriveCam units and by January 7, 2022, AMT deployed their current model of technology (SF300) and service which allows for continual recording, driver distraction detection and audible altering, etc.

The crash-involved vehicle Lytx DriveCam system recorded 8 seconds before and 4 seconds after the June 9, 2021 impact which was forwarded to the NTSB Vehicle Recorder Division for analysis. For additional information concerning the Lytx DriveCam download, see the *Onboard Image Recorder-Specialist's Factual Report* in the docket.

During the initial interview with the carrier on June 11, 2021, AMT's CEO stated to NTSB investigators that crash-involved truck-tractor was equipped with a 2016 Lytx DriveCam system. The CEO stated AMT did not have previous historical events on file for the crash-involved driver. On July 29, 2021, the NTSB conducted a follow up interview with the CEO and General Manager.⁴² According to the CEO (who referred to herself in the interview as the AMT President) stated some of their driver training is based on the DriveCam videos. She stated, "if we watch and we see something coming up that's concerning, we sit down, we coach that driver from the video that they have had an event that they caused" (the driver also watches the video event.) According to the CEO, management watches the videos on a daily basis. Per the interview statement with the CEO, if they see a driver is not improving, then they have a program where they first verbally coach the driver, then the next step is they are "writing them" and then the third step is putting them on a 90-day suspension. It depends on the severity of what they observe in the DriveCam video. The company uses the Lytx software to track the drivers because the Lytx program scores the drivers by the captured events, AMT management talks to the driver, then AMT puts into the Lytx software that the driver has been coached. Then the Lytx software will flag the management if someone they have been coaching is improving or not changing their behavior by color coding the driver (green to yellow to red).⁴³

On February 10, 2022, the NTSB served a subpoena to AMT and to Lytx requesting the Lytx DriveCam alerts for AMT drivers from January 1, 2021 to December 31, 2021. The documents provided by AMT indicated that the crash-involved driver had two coachable events.⁴⁴ The first was for a "braking event" dated May 13, 2021 and the DriveCam Lytx report stated behaviors identified as "cell phone observed." The only other event noted was for the crash date of June 9, 2021, that was identified as "collision." According to the documents received from the subpoena however, there were 10 additional events that were made in the same truck-tractor (#57) assigned to the crash-involved driver from January 1, 2021 to December 31, 2021. See **Table 7** for additional details.

It should be noted however, the Lytx report indicated that these events were classified as "unassigned driver" events, meaning that AMT had not assigned these events to any specific driver

⁴¹ Currently, Lytx DriveCam System and Risk Detection Service uses advanced machine vision and artificial intelligence to provide real-time in-cab alerts. The Lytx Driver Safety Program provides efficient tools to for driver accountability and behavior change. See [Best Fleet Management System for Vehicle Operations \(lytx.com\)](https://www.lytx.com)

⁴² See Motor Carrier Attachment: AMT CEO and GM interview 7/29/2021, pages 28-31.

⁴³ See Motor Carrier Attachment: AMT CEO and GM interview 7/29/2021, pages 28-31.

⁴⁴ The Lytx DriveCam System produces reports for risky behaviors such as hard braking, stability control, or speeding. The DriveCam camera installed at the time of the crash was a DC3P Event Recorder.

after management watched the video. Additionally, the reports obtained from the subpoena indicated that AMT had events for all of their drivers that should have resulted in coaching.⁴⁵

Table 7 . Lytx Events for Truck 57

Event	Device ID #	Truck #	Issue	Date
XHXG47387	ER94ACA2	57	Crash	06/09/21
XHXG47357	ER94ACA2	57	Crash	06/09/21
XHWP66726	ER94ACA2	57	Braking	05/24/21
XHWC87870	ER94ACA2	57	Braking/Cell phone	05/13/21
XHUX10241	ER94ACA2	57	Rough road	05/06/21
XHTZ27744	ER94ACA2	57	Driver tagged	04/15/21
XHTK05189	ER94ACA2	57	Braking	04/01/21
XHTF41666	ER94ACA2	57	Braking	03/29/21
XHSX82676	ER94ACA2	57	Cornering	03/22/21
XHSL83318	ER94ACA2	57	Braking	03/10/21
XHSH46513	ER94ACA2	57	Braking	03/07/21
XHRK58364	ER94ACA2	57	Cornering	02/11/21
XHQY95671	ER94ACA2	57	Braking	01/29/21
XHQP71662	ER94ACA2	57	Unbelted	01/20/21

Additionally, documents provided by AMT indicated an AMT form labeled Incident Report was made on the crash-involved driver dated September 7, 2020, for DriveCam event #XHKY25097. The DriveCam was triggered for braking and the behavior captured in the video was the use of a cell phone violation. The DriveCam video event was reviewed by the driver’s supervisor and the driver incident report stated the driver was coached to “eliminate all distractions while driving.” And that the crash-involved driver was informed that “if caught doing this action of driving while on his cell phone it will result in termination”. AMT did not provide an “Incident Form” related to the May 13, 2021 cellphone use incident that was captured in the DriveCam data. For additional information, see the *Human Performance Attachment - AMT Driver Incident Reports* in the docket.⁴⁶

4. AMT Vehicle Maintenance

On June 14, 2021, NTSB investigators interviewed the AMT general manager to learn more about the carrier’s CMV maintenance program.⁴⁷ According to the general manager, the motor carrier conducted only minor maintenance on their truck-tractor fleet that included: brake work, belts, seat repair, oil changes and topping off fluids. All major work (i.e., tires, transmission, engine repairs, etc.) were performed by a mechanic from the Freightliner dealership or another

⁴⁵ Additionally, the obtained records showed that nearly all drivers had DriveCam events; many drivers had dozens of events, including one with 128 events in the last 10 months of 2021. However, most events could not be associated with a specific driver because 77 percent of the reported events had an unidentified driver. See Motor Carrier Attachment: AMT Lytx DriveCam Information.

⁴⁶ On November 5, 2019, the crash-involved driver notified his supervisor via telephone that he believed he had been struck by a motor home while operating his truck but did not see any damage. The supervisor reviewed DriveCam video event #XHAW54499 showed it occurred at 8:00p m. and the supervisor did find minimal damage to the vehicle. See the *Human Performance Attachment - AMT Driver Incident Reports* in the docket.

⁴⁷ See Motor Carrier Attachment - AMT General Manager Interview 6.14.2021.

outside vendor. The carrier showed investigators a computer software program that tracked and managed repairs and services for the fleet. Maintenance services were triggered by mileage milestones. The carrier's preventative maintenance program met the regulatory requirement under §396.3.

The carrier produced maintenance records for the truck-tractor. At the time of the crash the truck-tractor (unit 57) had a valid annual inspection which was performed December 2020. Although not required, the carrier produced driver vehicle inspection reports (DVIRs) for the past 90 days.⁴⁸

The general manager stated that unit 57 was a "good rig" during his interview and further stated that there "were no known issues or recent mechanical issues." During the interview with the crash-involved driver, he also told investigators that unit 57 was "running fine and had no mechanical issues" or concerns prior to the crash. The carrier stated during the interview that all of the truck-tractors were governed at 68 mph for regular truck-tractors and 55 mph for the truck-tractors designated to pull the super tankers.⁴⁹ For additional information see the *Vehicle Factors Group Chairman Factual Report*.

The milk tank-trailer (unit 474) involved in this crash was owned by Shamrock Dairy Farm and leased to UDA and AMT did not have any maintenance records for unit 474. According to the lease agreement between Shamrock Dairy Farm and UDA, maintenance and repairs was addressed under Section 10 and stated the following:

Repairs: At its own expense, Sub-Lessee shall keep the equipment in good repair, condition and working order in compliance with all manufacturers' maintenance and warranty requirements and to that end shall furnish all required labor, parts, mechanisms and devices. Sub-Lessor shall not be obligated to make any repairs or replacements.⁵⁰

The maintenance for the leased tank-trailer had been performed by UDA since February 2018. UDA provided NTSB investigators copies of the preventative maintenance and inspection reports for the tank-trailer. The tank-trailer had a current annual inspection that was valid from May 2021 to May 2022.

5. United Dairymen of Arizona (UDA)

As mentioned, AMT was a contracted carrier for the UDA milk cooperative (co-op). On June 15-16, 2021, NTSB investigators met with staff at the UDA located at 2008 S. Hardy Dr. Tempe, Arizona 85282. According to the UDA staff, the plant functioned as a milk marketing co-op that was owned by Arizona dairy families and functioned as a "balancer" between supply and demand for the milk industry. According to the co-op website, UDA was "founded in 1960, the

⁴⁸ Under 49 CFR 396.11 Drivers are not required to prepare a report if no defect or deficiency is discovered by or reported to the driver.

⁴⁹ Super tanker milk cargo tank had five axles in comparison to regular tankers which had two axles.

co-op merged two local dairy associations to ensure an adequate supply of fresh milk and dairy products of the highest possible quality for customers.”⁵¹

5.1. UDA History

According to the co-op website the UDA:

membership consisted of approximately 61 farms, averaging 2,700 head per dairy. The modern manufacturing facility in Tempe operated 24 hours a day, 7 days a week, and produces high, medium and low heat nonfat dry milk (including vitamin fortified products), cream, butter, skim milk, condensed skim milk, milk protein concentrate and lactose powder. We are proud to be among the few remaining full-service dairy co-ops in the country.⁵²

UDA provides its members installation, emergency repair, preventive maintenance, and transportation services along with chemical, equipment and pharmaceutical supplies. The facility employs 300 employees.

5.2. UDA Contractors

The UDA contracted with five motor carriers to transport raw milk from dairies surrounding Phoenix region. The contracted motor carriers included:

- Milkyway Transportation - USDOT 1249774
- Arizona Milk Transport - USDOT 1435950
- Desert Milk Transport - USDOT 947020
- Rogers Davis Trucking - USDOT 16949119
- Piphos Milk Transport- USDOT 1423480

UDA had signed a 15-month contract with AMT effective from July 1, 2020 to until September 30, 2021.

5.2.1. UDA Contracts

Contracts written between UDA and the five contracted motor carriers contained the same language for each motor carrier with the exemption of compensation per route.⁵³ According to UDA officials, routes that required longer travel time to the UDA plant had a higher compensation rate. Section 2 of the contract stated that the “carrier shall pick up assigned milk at such times as Association directs, promptly transport and deliver daily (including Sundays and holidays) to such plants as Association shall specify pursuant to an association schedule, all milk at association member dairy farms within the State of Arizona.”

All of the contracts stated that penalties may be assessed for any of the following errors:

⁵¹ Retrieved from: [About – United Dairymen of Arizona \(uda.coop\)](https://www.uda.coop/about)

⁵² Ibid.

⁵³ See Motor Carrier Attachment: UDA contract with Arizona Milk Transport.

- Be assessed a \$25 administration fee for failure to accurately measure and record the pounds of milk located at each member's dairy farm.
- Be assessed a \$50 administration fee for each lab sample that is not within normal range of acceptable butterfat standards as a result of poor sampling by the carrier's employee.
- Be assessed \$100 administration fee for warm temperature of samples greater than 4.5 degrees Celsius/ 40 degrees Fahrenheit.
- The assessed \$45 administration fee for poor paperwork not turned in on time or not correctly following recorded with explanation of wrong recordings prior to following the day pick up.
- Carriers would be charged the cost to replace a broken or damaged iPad at cost of \$521.26 per unit.

According to UDA, AMT had been fined \$2864.56 for the first six months of 2021. The NTSB compared the penalties for the other contractors and determined that AMT was not higher or lower than the other contractors. The NTSB reviewed nine months of records and determined no penalties were assessed against the crash-involved driver for any errors or damages.

5.2.2. UDA Requirements

UDA provided the following language in their contracts that each motor carrier was required to:

Keep its truck-tractors in legal and safe operating condition and to comply with, adhere to, and abide by all applicable laws and regulations governing the hauling of milk and the operating of motor carriers upon those highways used in the performance of this agreement, including but not limited to, those regulations issued by federal or state Department of Transportation and Department of Agriculture.⁵⁴

The contract also stated that each carrier “agrees to be in compliance with all applicable weight law limits and regulations.” Carriers would be compensated for net milk load weights up to the combined gross load weight limit of 80,000 lbs. If carrier loads quantities of milk that caused the combined gross load to exceed 80,000 lbs., then the carrier will not be compensated for the milk weights in the amount equal to the amount of the combined gross load over 80,000 lbs.

The contract also required all drivers to be trained and licensed as a milk sampler. Each driver was required to take milk samples that were in accordance with the standards of the pasteurized milk ordinance, to attend and complete a UDA conducted class in proper milk hauling and sampling procedures, and to obtain a milk samplers license before a driver would be allowed to pick up milk on their own. All drivers were required to pass a verification of knowledge test on sampling and milk pick up procedures each year administrated by UDA. A carrier would not be

⁵⁴ Ibid.

compensated for any load picked up by an unlicensed driver and would be assessed the costs incurred by UDA in the event that it is required to pick up at contaminated load by reason of carrier's failure to provide a licensed driver.

The contract also required the contracted carriers to “take reasonable care of any truck-tractor or tank-trailer including but not limited to, brakes, wheels, bearings, tires, and lights, and promptly report damage and/or malfunctions to the UDA.” The contract additionally stated that UDA had the right to periodically inspect the running gear and the carrier shall be subject to reimbursement provisions of such running gear. The NTSB questioned UDA staff how often they inspected AMT's equipment, or any of other the other contracted motor carriers and UDA staff stated that they had not inspected AMTs vehicles or any of the other contracted carriers. The NTSB also asked if UDA had ever checked the FMCSAs website to check on any of the carrier's inspection or accident history, they also replied “no.” It should be noted, one of the five contracted carriers—Milkyway Transport—had one Behavior Analysis and Safety Improvement Category (BASIC)—Crash indicator—in alert status in June 2021. When NTSB questioned UDA if they ever did any monitoring of the driver's hours of service, they replied “no.” In fact they were not aware that drivers were not required to follow the HOS requirements while operating under the AG Exemption.

5.2.3. UDA iPad Manifest System

The UDA issued each driver an iPad to help process and track each load of milk that was picked up and transported.⁵⁵ The iPad was equipped with unique software called “mobile manifest” that was designed by UDA and Dairy.Com which was specific to the milk industry.⁵⁶ Pick up times, tanker information, scale weights, bar codes, seal information, lab data and other pertinent information that was required by the Pasteurized Milk Ordinance (PMO) and by Federal /state regulation was tracked on the UDA issued iPad. The PMO is a set of minimum standards and requirements that are established by the Food and Drug Administration (FDA) for regulating the production, processing and packaging of Grade A milk. See **Section 6** and **Section 7** for additional information.

UDA officials stated that all new drivers from the five contracted motor carriers were trained on the proper use of the iPad and all dairy drivers received recurrent annual training on the proper use of the UDA iPad as well as recertification of the milk sampler's credentials.

The iPad transmitted data to the iCloud continuously throughout the drivers' pickups and deliveries.⁵⁷ The UDA milk manifest system was the only functionality that the iPad had and was not capable of making calls, texting, internet functions, or other potential Apps found on a conventional iPad. NTSB investigators learned that the iPad used by the crash-involved driver had its' own Verizon phone number. NTSB investigators issued a Subpoena to Verizon to access any

⁵⁵ An iPad product is a line of tablet computer designed by Apple Inc. which run the iOS and iPad OS mobile operating systems.

⁵⁶ For additional information see: [Connecting the Dairy Supply Chain - Dairy.com](https://www.dairy.com/industry-connections).

⁵⁷ iCloud a cloud storage and cloud computing service from Apple Inc. that stores data. For more information see: [Introduction to iCloud - Apple Support](https://support.apple.com/en-us/HT204011)

potential useful data for reconstruction. The data requested data from Verizon was determined to be inconclusive and did not provide any GPS data or details of the driver's movements.

5.3. UDA Operations

UDA officials provided NTSB investigators with a tour of the operations. UDA officials explained that loads are dispatched to the contractors in advance for pickup at local dairies. Milk tank-trailers were staged at the UDA facility, picked up by the driver, driven to the dairy, filled with raw milk and returned to UDA. Drivers would be prompted for various entries on the UDA company iPad with a dropdown menu. Drivers were required to take samples of loads at each dairy farm that must be taken to the UDA lab upon arrival of each load. Raw milk loads can follow two paths: either loads are taken to customers (for example grocery stores like Kroger) who will pasteurize, bottle, and distribute; or loads that are not needed by customers are turned into powdered milk or other products. The UDA facility processes over 4 billion pounds of milk each year.⁵⁸ A photograph of a milk truck arrival at UDA and offloaded is documented in **Photo 1**.



Photo 1. Milk tanker-trailers being off loaded at United Dairymen of Arizona.

Drivers were required to weigh scale their vehicles before and after dropping a load at UDA. Drivers also fueled up their truck-tractors at the end of each shift at the UDA fuel island. Carriers were charged a flat fee per gallon of fuel and are never charged any additional cost regardless of fuel price increases.

⁵⁸ Retrieved from: UDA website – www.uda.coop.

5.4. UDA Dispatch

Collectively UDA dispatched between 175 and 180 routes per day to all 5 motor carriers. UDA generated the dispatch orders for each of the five contracted motor carriers daily. The dispatch run sheets are populated by historical data from the previous weeks demand from the customers. Dispatch orders were also posted in the driver lounge / training area at UDA for all drivers to view. Although dispatches were different each day, all of the AMT routes remained constant and routine for most drivers including the crash-involved driver who ran similar routes in the month reviewed by the NTSB. All of the routes dispatched/assigned to the crash-involved driver were less than 100 miles.

5.5. Training

UDA conducted monthly training classes for new milk drivers who were on-boarding and held annual recertification classes for all contracted motor carrier drivers.⁵⁹ This training included: UDA Milk Hauling Procedure class which trained drivers on the procedures and responsibilities to be properly permitted by the Arizona Department of Agriculture: a class on all of the equipment necessary to take milk samples; the safety practices at the processing facilities and at UDA; and, a class on proper venting procedures to prevent tank damage.

6. State of Arizona Oversight of the Milk Industry⁶⁰

The Arizona Department of Agriculture is responsible for all aspects of the dairy industry in the state. This includes the production of Grade “A” milk and the processing and manufacturing of Grade “A” and non-Grade “A” milk and milk products. The program is funded primarily by the state of Arizona budget’s general fund and by some license fees.⁶¹ Milk producers are regulated under the PMO, as well as dairy laws in the Arizona Revised Statutes and the Arizona Administrative Code. in the Arizona Revised Statutes (A.R.S.) and the Arizona Administrative Code.⁶²

Milk producers are checked regularly for overall sanitation, milk protection and handling, usage and handling of animal medications and related activities. Milk and farm waters are sampled regularly to ensure a safe, quality milk supply. Other dairy farm activities include the evaluation of the licensed hauler/samplers who pick up milk from producers, and the inspection and permitting of the milk tank trucks. Milk processing plants are also regulated under the PMO, the A.R.S. and the A.A.C. Some non-Grade “A” products, such as cheese and butter, are regulated using United States Department of Agriculture (USDA) guidelines. Dairy Control inspectors regulate milk processing plants, from receiving milk from the producer, to the point that the final products are shipped out. Each tanker of milk received must be first checked for antibiotics, prior to unloading the tanker.

⁵⁹ See Motor Carrier Attachment: UDA Training PowerPoint.

⁶⁰ This section retrieved from: [Dairy Inspections | Arizona Department of Agriculture \(az.gov\)](https://www.azdhs.gov/dairy-inspections/)

⁶¹ The General Fund is the backbone of Arizona’s state government, supporting more than 60 state agencies. More than 90% of the fund goes to eight agencies, with the Department of Education receiving the largest portion. For more information see: [State Budget 101 - The Arizona Center for Economic Progress \(azeconcenter.org\)](https://www.azconcenter.org/state-budget-101-the-arizona-center-for-economic-progress/)

⁶² [3-02.pdf \(azsos.gov\)](https://www.azsos.gov/3-02.pdf)

The Industry Samplers, who take milk samples from the tanker, are evaluated by the State inspectors. This helps assure uniformity in the samples that are evaluated. Processing plants are regularly inspected for sanitation, milk storage and handling, equipment cleaning and product packaging and storage. Milk pasteurization equipment is evaluated for public health controls and tested at the initial installation and at regular intervals to assure proper pasteurization. Raw milk and finished milk and milk products are sampled from milk processing plants and submitted to the State Agriculture Lab. Tests conducted include bacterial levels, antibiotics, and tests to confirm proper pasteurization.

Arizona is a member and voting delegate in the National Conference for Interstate Milk Shippers (NCIMS). The NCIMS is a cooperative program between the Food and Drug Administration (FDA), the dairy industry and State Regulatory Authorities. It is designed to provide regulatory uniformity and reciprocity for Grade “A” milk and milk products. The Conference convenes biennially to consider changes to the PMO and other Conference related documents. The applicable laws regulating milk in Arizona are found under Arizona Title 3, Chapter 4, Articles 3-601- 3-634 and Article 3, 3-661-3-671.⁶³

6.1. Arizona Milk Industry Operations

The State of Arizona has approximately 100 dairy farms, average herd sizes are more than 1,500 cows with some in the 8,000 and 9,000 range, and Arizona ranks among the highest milk production per cow at around 24,000 pounds. The state boasts two of the top 20 milk-producing counties in the United States, Maricopa County, which includes Phoenix and surrounding population areas, and Pinal County to the southeast of Phoenix. Dairy is the No. 1 agricultural commodity in Arizona.⁶⁴ See **Table 8** for additional details.

Table 8. Arizona Dairy Industry Overview

Arizona Dairy Industry Per USDA ⁶⁵			
	2004	2009	2021
Milk Cows (Average)	160,000	177,000	194,000
Milk Produced per Cow	22,788 lbs.	23,028 lbs.	24,333 lbs.
Milk Production	3.65 billion lbs.	4.08 billion lbs.	4.81 billion lbs.
Licensed Dairy Farms	150	110	90

7. Federal Oversight of Milk Industry

Federal oversight of the milk industry is controlled by the US Department of Health and Human Services, Public Health Service (USPHS) and the Food and Drug Administration (FDA). According to the FDA, nationally there are approximately 35,000 dairy farms, 18,000 bulk milk tankers (cargo tanks), 16,000 milk hauler samplers (i.e., truck drivers) 670 milk processing plants, 656 milk laboratories, and 515 single service milk container /closure manufacturers.

⁶³ Retrieved from: [3-03 \(19-3\) 51pgs fm \(azsos.gov\)](#)

⁶⁴ Retrieved from: [Welcome to Cheese Market News.](#)

⁶⁵ Retrieved from: [USDA/NASS 2021 State Agriculture Overview for Arizona](#)

To assist states and municipalities in initiating and maintaining effective programs for the prevention of milk borne disease and application of sanitation measures, the USPHS, provides administrative and technical details for satisfactory compliance in a model milk regulation, now titled the Grade “A” PMO. The current 2019 Revision, incorporates the provisions governing the processing, packaging, and sale of Grade “A” milk and milk products, including buttermilk and buttermilk products, whey and whey products, and condensed and dry milk products and represents the 32nd revision and incorporates new knowledge into public health practice.”⁶⁶

The USPHS/FDA’s recommended Grade “A” PMO is the basic standard used in the voluntary Cooperative State-USPHS/FDA Program for the Certification of Interstate Milk Shippers; a program participated in by all fifty (50) States, the District of Columbia and U.S. Trust Territories. The National Conference on Interstate Milk Shipments (NCIMS) in accordance with the Memorandum of Understanding (MOU) with the FDA has at its biennial conferences recommended changes and modifications to the Grade “A” PMO.

7.1. FDA’s Role in the Milk Industry⁶⁷

The FDA's Milk Safety Cooperative Program provides assistance to state and local regulatory agencies in the prevention of communicable diseases and the implementation and enforcement of regulations related to the production and distribution of Grade "A" milk and milk products for human consumption. Under the Grade A Milk Safety program, FDA is responsible for:

- Promoting the adoption, implementation, and enforcement of regulatory standards as provided in the Model Grade "A" Pasteurized Milk Ordinance (PMO).
- Standardizing and certification of state and local regulatory personnel.
- Publishing compliance and enforcement ratings, quarterly.
- Training state and local regulatory personnel.
- Assisting laboratory personnel, industry, and academia.
- Check-ratings and single-service audits for sanitation compliance of listed shippers.
- Interpreting.
- Evaluating and approving milk laboratories.
- The triennial, written evaluation of state milk control programs.

8. Federal Motor Carrier Safety Administration Oversight

As already described in Section 1.1, FMCSA’s MCMIS, issued AMT USDOT number 2851168. The carrier MCS-150 lists cargo classification as “other” and has inserted into the blank space shows “milk.” Because the carrier operates only in intrastate commerce, the carrier was never in the FMCSA New Entrant Safety Program and prior to this crash had never been subject to a Compliance Review (CR).⁶⁸ According to the MCMIS Profile AMT had two recordable crashes in 2019 and four in 2020. See **Figure 4** for more information.

⁶⁶ Ibid.

⁶⁷ Retrieved from: [FDA Grade "A" Milk Safety Program | FDA](#)

⁶⁸ Behavioral Analysis and Safety Improvement Categories is the system used by FMCSA to prioritize an intervention such as a Compliance Review.

Year	Fatalities	Injuries	Towaway	Total
2018	0	0	1	1
2019	0	0	2	2
2020	0	1	3	4
Total:	0	1	6	7
Average:	0.0	0.3	2.0	2.3
2021	0	0	0	0

Figure 4. Arizona Milk Transport Four Year Crash History

8.1. CSA and SMS

In 2010, the FMCSA introduced the Compliance, Safety, Accountability (CSA) system as an initiative to improve large truck and bus safety and ultimately reduce crashes, injuries, and fatalities related to CMVs. It introduced a new enforcement and compliance model that allows the FMCSA and its state partners to contact a larger number of carriers earlier in order to address safety problems before crashes occur. Along with CSA, the FMCSA also rolled out a new operational model called the Safety Measurement System (SMS), which replaced its predecessor, known as the SAFESTAT model. SMS uses a motor carrier’s data from roadside inspections, (including all safety-based violations), state-reported crashes, and the Federal Motor Carrier Census to quantify performance in the following Behavior Analysis and Safety Improvement Categories (BASICS).

8.1.1. CSA BASICS

- **Unsafe Driving** — Operation of CMVs by drivers in a dangerous or careless manner. *Example violations:* Speeding, reckless driving, improper lane change, and inattention. (Federal Motor Carrier Safety Regulations (FMCSRs) 49 CFR Parts 392 and 397)
- **Hours-of-Service (HOS) Compliance** — Operation of CMVs by drivers who are ill, fatigued, or in non-compliance with the HOS regulations. This BASIC includes violations of regulations pertaining to records of duty status (RODS) as they relate to HOS requirements and the management of CMV driver fatigue *Example violations:* false HOS RODS and operating a CMV while ill or fatigued. (FMCSR Parts 392 and 395)
- **Driver Fitness** — Operation of CMVs by drivers who are unfit to operate a CMV due to lack of training, experience, or medical qualifications. *Example violations:* Failure to have a valid and appropriate commercial driver’s license (CDL) and being medically unqualified to operate a CMV. (FMCSR Parts 383 and 391)
- **Controlled Substances and Alcohol** — Operation of CMVs by drivers who are impaired due to alcohol, illegal drugs, and misuse of prescription or over-the-counter medications. *Example violations:* Use or possession of controlled substances/alcohol. (FMCSR Parts 382 and 392)

<https://csa.fmcsa.dot.gov/HelpCenter/Resources.aspx?type=keyword&kID=BASIC>

- **Vehicle Maintenance** — Failure to properly maintain a CMV and/or properly prevent shifting loads. *Example violations:* Brakes, lights, and other mechanical defects, failure to make required repairs, and improper load securement. (FMCSR Parts 392, 393, and 396)
- **Hazardous Materials (HM) Compliance** — Unsafe handling of HM on a CMV. *Example violations:* Release of HM from package, no shipping papers (carrier), and no placards/markings when required. (FMCSR Part 397 and Hazardous Materials Regulations Parts 171, 172, 173, 177, 178, 179, and 180)
- **Crash Indicator** — Histories or patterns of high crash involvement, including frequency and severity based on information from state-reported crashes.

A carrier’s measurement for each BASIC depends on the following:

- The number of adverse safety events (violations related to that BASIC or crashes).
- The severity of violations or crashes.
- When the adverse safety events occurred (more recent events are weighted more heavily).

After a measurement is determined, the carrier is then placed in a peer group (i.e., other carriers with similar numbers of inspections and carrier size). Percentiles from 0 to 100 are then determined by comparing the BASIC measurements of the carrier to the measurements of other carriers in the peer group. A percentile of “100” indicates the worst performance.

The FMCSA established threshold levels that would require agency action. Unsafe Driving, HOS, and Crash BASICs were set at lower thresholds because of their inherent risk. Additionally, passenger and hazmat carriers have lower thresholds than all other carriers because of their inherent risk. **Table 4** represents the thresholds set by the FMCSA that help prioritize agency intervention and resource management.⁶⁹ AMT was classified as a For-Hire property carrier and falls under the “all other motor carriers” criteria.

Table 4. BASIC thresholds.⁷⁰

BASIC	Passenger Carrier	HM Carrier	All Other Motor Carriers
Unsafe Driving, HOS, Crash	50%	60%	65%
Driver Fitness, Drug & Alcohol, Maintenance	65%	75%	80%
Hazardous Materials	80%	80%	80%

On a carrier’s SMS profile, which is publicly available on the Safer website, an alert symbol is displayed in any designated BASIC where the carrier has exceeded the corresponding threshold.⁷¹ At the time of the crash, the MCMIS Carrier Profile showed 28 percentile in the Crash Indicator BASIC.⁷² It should be noted that this scoring matrix is also used by the AZDPS

⁶⁹ Retrieved from: www.fmcsa.dot.gov.

⁷⁰ Retrieved from: <http://csa.fmcsa.dot.gov/FAQs.aspx>.

⁷¹ FMCSA BASIC information publicly available for passenger and Hazardous Material carriers only. See additional information at the FMCSA Safer website: <http://safer.fmcsa.dot.gov/CompanySnapshot.aspx>.

⁷² See Motor Carrier Attachment: MCMIS Carrier Profile (Excerpts) for Arizona Milk Transport.

to prioritize an intervention for intrastate carriers. During the 24 months prior to the crash, AMT had received two driver/roadside inspections which resulted in one vehicle to be placed out of service. Neither of these inspections involved the crash-involved driver or crash involved vehicle. For additional details, see Motor Carrier Attachment: AMT MCMIS Carrier Profile in the docket.

8.2. FMCSA Actions Post-Crash

A FMCSA investigator did meet with NTSB investigators during the on-scene phase of the NTSB investigation but was not present with NTSB /AZDPS investigators during the inspection of the vehicles or during the on-site inspection at the motor carrier. Under most situations, the FMCSA has jurisdiction over Parts 382 (drug and alcohol testing) and Part 383 (CDL) for intrastate motor carriers. The FMCSA did not initiate a CR or conduct a post-crash investigation at AMT.

D. DOCKET MATERIAL

The following attachments are included in the docket for this investigation:

LIST OF ATTACHMENTS

Motor Carrier Attachment: Arizona Milk Transport Inc. MCS-150
Motor Carrier Attachment: FMCSA emails dated August 23, 2022 and February 6, 2023
Motor Carrier Attachment: Lease Agreement Shamrock Dairy and UDA
Motor Carrier Attachment: Training Records for Crash-Involved Driver
Motor Carrier Attachment: Arizona Milk Transport Safety Conduct Policy
Motor Carrier Attachment: Driver Notification Letter Signed 1/28/2013
Motor Carrier Attachment: AMT Driver Application for Employment
Motor Carrier Attachment: AMT CEO and GM Interview 7/29/21
Motor Carrier Attachment: AMT Crash-Involved Driver Interview 6/11/21
Motor Carrier Attachment: AMT Security Camera Video Review
Motor Carrier Attachment: AMT Crash-Involved Driver Time Sheets, Reconstructed Hours
Motor Carrier Attachment: AMT Crash Involved Driver Bills of Lading
Motor Carrier Attachment: Additional AMT Driver Time Sheets
Motor Carrier Attachment: Arizona DPS Compliance Review, dated 8/09/21
Motor Carrier Attachment: AMT and Lytx DriveCam Information
Motor Carrier Attachment: UDA Contract with Arizona Milk Transport
Motor Carrier Attachment: AMT General Manager Interview 6.14.2021
Motor Carrier Attachment: UDA Training PowerPoint
Motor Carrier Attachment: MCMIS Carrier Profile (Excerpts) for Arizona Milk Transport

END OF REPORT

Michael S. Fox
Senior Highway Accident Investigator