MAI-2017-07

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
Metal and Nonmetal Mine Safety and Health

REPORT OF INVESTIGATION

Surface Metal Mine
(Copper)

Fatal Powered Haulage Accident
July 27, 2017

Asarco LLC
Mission/San Xavier/ Eisenhower
Sahuarita, Pima County, Arizona
Mine I.D. No. 02-00135

Investigators

Lee A. Hughes
Mine Safety and Health Inspector

Ernesto Vasquez
Mine Safety and Health Inspector

Originating Office

Mine Safety and Health Administration
Rocky Mountain District
P.O. Box 25367 DFC
DFC, 6th Avenue and Kipling
Building 25, Dock E18
Denver, CO 80225-0367

David Weaver, District Manager

Table of Contents

OVERVIEW

On July 27, 2017, Gabriel Antonio Benitez, Heavy Truck Driver, age 41, was fatally injured when he was crushed inside his parked pickup truck by a 320-ton haul truck.

The accident occurred because mine management failed to ensure dump sites were adequately illuminated and failed to establish rules governing right-of-way and traffic control at dump sites.

GENERAL INFORMATION

Mission/San Xavier/Eisenhower is an open pit copper mine owned and operated by Asarco LLC, and is located in Sahuarita, Pima County, Arizona. The principal operating official is Tom Phillips, General Manager. The mine operates multiple shifts, 24 hours a day, 7 days a week. Total employment is 662 persons.

Copper ore is drilled and blasted in the open pit and transported by haul truck to a primary crusher. Crushed ore is transported to the mill by belt conveyor. The ore is then milled, concentrated, and smelted into copper plates. The finished product is sold to commercial industries.

The Mine Safety and Health Administration (MSHA) completed the last regular inspection of this operation on May 18, 2017.

DESCRIPTION OF ACCIDENT

On July 27, 2017, Gabriel Benitez (victim) began work at 7:00 p.m. Brian Samuelson, Shifter, assigned Benitez cable handler duties for this shift. After conducting a pre-operational inspection of the F-550 cable handler (pickup) truck, Benitez went to work.

At 8:20 p.m., Benitez drove the F-550 cable handler truck to the 3450 dump site, passing Erik Lopez, Equipment Operator, who was operating a rubber-tired dozer. Benitez parked his truck at the north end of the dump site, next to a wind row of material used to delineate the western boundary of the dump site. The cab of Benitez's truck was facing south and the truck's operating lights and strobe light had been turned off. Personal cell phone records indicate that Benitez had been using his cellphone while he was at the dump site.

At 8:33 p.m., Johnny Tynes, Heavy Truck Operator, entered the 3450 dump site in a Komatsu 930E-4, 320-ton haul truck, company number 316. Lopez directed Tynes to begin dumping further north (Figure 1). After dumping his load, Tynes began leaving the dump site. Nick Gomez, Heavy Truck Operator, entered the 3450 dump site in a Komatsu 930E-1, 320-ton haul truck, company number 390. Tynes made a large arcing turn in leaving the dump site to allow more room for Gomez's haul truck.

Prior to Haul Truck 390 entering the dump, Justin Benefield, Heavy Truck Operator, entered the dump site in a Komatsu 930E-4, 320-ton haul truck, company number 321. Benefield was not involved in the accident and did not witness the accident.

As the two haul trucks approached each other, Tynes felt the haul truck rock back and forth as though it had hit something. After the two haul trucks passed each other, Tynes made a U-turn to see what he had contacted to determine if

Lopez would need to clean the area with the rubber-tired dozer (Figure 2). Tynes saw he had contacted the victim's truck and called a mayday over the two-way radio. Lopez and Gomez proceeded to the scene. Mine officials immediately called emergency medical services. At 8:57 pm, Metro Fire and Rescue arrived, followed shortly by Metro EMS to begin extrication. The Pima County Sheriff pronounced Benitez dead at the scene at 10:34 pm. The cause of death was blunt force trauma.

INVESTIGATION OF THE ACCIDENT

Bjorn Meyer, Mine Manager, called the Department of Labor's National Contact Center (DOLNCC) at 9:28 p.m. MST on July 27, 2017, to notify MSHA of the accident. The DOLNCC notified Pete Del Duca, Staff Assistant for MSHA's Rocky Mountain District Office, and MSHA started an investigation the same night. MSHA issued an order under the provisions of Section 103(k) of the Mine Act to ensure the safety of the miners.

MSHA's accident investigation team traveled to the mine site, made a physical inspection of the accident scene, interviewed miners and reviewed conditions and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management, the State of Arizona Mine Inspector's Office, miners and their representatives.

DISCUSSION

Location of the Accident

The accident occurred on the 3450 dump site. The trucks were on the west side of the dump, progressively dumping from the north end to the south end. Immediately prior to the accident, the dumping location had been repositioned to the north end of the dump to restart the dumping cycle.

Pickup Truck

The investigation showed the pickup truck involved in the accident was a 2012, Ford F-550 4X2 standard cab truck. The truck was completely destroyed in the accident. An information download of the truck's black box revealed no useful information. Investigators determined the truck was equipped with a flashing beacon light and reflective flag attached to an antenna that was approximately twelve feet above the ground.

Investigators found the vehicle light switch in the off position. Witness statements indicated the beacon strobe light and the vehicle lights were not on at the time of the accident.

Haul Truck

The investigation revealed the haul truck involved in the accident was a 2012, Komatsu 930E-4E rigid frame rear dump truck with an alternating current electric-drive system. Investigators noted the truck was equipped with a Komatsu, SSDA16V160, diesel engine, and all lights and other safety equipment were functional.

Dumpsite Illumination

Investigators found one light plant at the 3450 dump site, but it was positioned facing the previous dump location. The operator did not reposition the light when the dump site moved to the north, and the victim's location at the 3450 dump site was not illuminated at the time of the accident. Additionally, investigators observed only three of the four lights of the light plant were operational.

Haul Truck Operator View Tests

Investigators conducted a re-creation of the accident with haul trucks 316 and 390 at approximately the same time of day the accident occurred. Shifter Brian Samuelson placed the dump site light plant mast in its original position (the light had been repositioned during recovery operations), and observers noted truck 316 had a blind spot of approximately 30 feet directly in front of it. The re-creation provided evidence that the victim's truck was not easily visible while exiting the dump.

Weather

Investigators noted the weather at the time of the accident was cloudy with light rain and a temperature of approximately 79º F. Visibility played a role in the accident.

Traffic Control

Investigators reviewed the operator's procedures for traffic control, right-of-way, and direction of movement. The operator had no procedures to address light duty trucks on dump sites. According to interviews and on-site observations, the dump site is one of the few areas of the mine where cell phone coverage is available. Cell phone records indicate that Benitez had been using his cell phone while he was at the dump site. In addition, interviews indicated that persons regularly used the dump site during the night shift for various unknown reasons that were not work-related.

TRAINING AND EXPERIENCE

Gabriel Benitez, victim, had five years and fifteen weeks of mining experience all at this mine. He received training in accordance with 30 CFR Part 48.

Johnny Tynes, Heavy Truck Driver, had two months, two weeks and four days of mining experience all at this mine as a heavy truck operator. He received training in accordance with 30 CFR Part 48.

ROOT CAUSE ANALYSIS

Investigators performed a root cause analysis and identified the following root causes:

Root Cause: Management had not established traffic control policies and procedures to control the movement of light duty vehicles in the dump areas. Management failed to ensure that light duty vehicles were only in the area to conduct work related activities.

Corrective Action: Management established new procedures in the mine's "Pit Driving Training" policy titled "Approaching and Leaving an Active Dump". The new policy designates how light duty vehicles, service trucks and support utility trucks will interact with active dump areas. Management trained all miners regarding these new policies and procedures.

Root Cause: Management had not established a procedure to ensure dump sites are properly illuminated to safely light the active dumping areas.

Corrective Action: Management established a "Mine Supervisor Developmental Training Plan", which addresses lighting and dump areas. Supervisors will visit dump sites to determine if the illumination is adequate and to ensure changes are made in lighting, if necessary, as the dump area changes during the shift.

CONCLUSION

Gabriel Antonio Benitez was fatally injured when a Komatsu 930E-4 haul truck ran over his parked, F-550 pickup truck. The victim was parked within the designated traffic pattern for the haul trucks, outside of the illumination of the singular light plant. The accident occurred because the operator did not have policies, procedures, and controls to ensure the adequate illumination of dump site areas and did not manage light duty vehicle traffic in active dump areas.

ENFORCEMENT ACTIONS

Order No. 9300748 was issued on July 27, 2017, under the provisions of Section 103(k) of the Mine Act:

An accident occurred at this operation on July 27, 2017, at approximately 8:30 p.m. As rescue and recovery work is necessary, this order is being issued, under section 103(k) of the Federal Mine Safety and Health Act of 1977, to ensure the safety of all persons at this operation. This order is also being issued to prevent the destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity at the 3450 dump except to the extent necessary to rescue an individual or prevent or eliminate an imminent danger until MSHA has determined it is safe to resume normal mining operations in this area. This order applies to all persons engaged in the rescue and recovery operation and any persons on-site. This order was initially issued orally to the mine operator at 21:45 p.m., and has been reduced to writing.

Citation No. 9341154 was issued on August 14, 2017, under the provisions of Section 104(a) of the Mine Act for a violation of 56.9100(a):

A fatal accident occurred at this operation on July 27, 2017 when the operator of a Ford F550 cable handler pickup was crushed by a Komatsu 930E-4 Haul Truck. The victim was parked on the active 3450 Dump Site. Rules governing traffic control for the safe movement of mobile equipment on the Dump Site limiting access of light duty pickups were not established.

Citation No. 9341155 was issued on August 14, 2017, under the provisions of Section 104(a) of the Mine Act for a violation of 56.17001:

A fatal accident occurred at this operation on July 27, 2017 when the operator of a Ford F550 cable handler pickup was crushed by a Komatsu 930E-4 Haul Truck. The victim was parked on the active 3450 Dump Site. Illumination sufficient to provide safe working conditions for the dump site was not provided. Trucks were dumping along the west side of the dump, progressing to the north. As the dump area was repositioned to the north, the operator failed to reposition the light plant to illuminate the active dump area. Additionally, only three of the four lights of the light plant were operational.

Approved by:

_____ _____

David Weaver Date
District manager

APPENDIX A

Persons Participating in the Investigation

Asarco LLC

Tim Shields	Human Resource Manager
Kim Bradshaw	Safety Consultant
Bjorn Meyer	Mine Manager
Brian Samuelson	Crew 4 Shifter
Frank Galvez	Safety Engineer
Al Rios	Safety Manager
Randall Rodriguez	Miners' Representative
Anthony Jose	Miners' Representative

Husch Blackwell LLP

Donna V. Pryor	Attorney

United Steelworkers

Bradford L. White	President, Local 937
Eduardo Placencio	Vice President, Local 937
Ken Ball	Safety Committee, Local 15320

Exponent

Cleve Bare	Principal Engineer

State of Arizona Mine Inspector's Office

Tim Evans	Assistant Mine Inspector
John Stanford	Sr. Deputy Mine Inspector

Mine Safety and Health Administration

Lee A. Hughes	Mine Safety and Health Inspector
Ernesto Vasquez	Mine Safety and Health Inspector
David M. Sinquefield	Mine Safety and Health Inspector (Training)

APPENDIX B

Victim Information

Accident Investigation Data - Victim Information
Event Number: 6 7 7 6 0 0 9

U.S. Department of Labor
Mine Safety and Health Administration

Victim Information: 1

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Degree of Injury:
Gabriel A. Benitez	*M*	*41*	*01 Fatal*

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 07/27/2017 b.Time: 21:34	*a. Date: 07/27/2017 b.Time: 19:00*

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
176 Heavy Truck Driver	*040 Cable Handler*	Yes X No

10. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	*0*	*26*	*0*	b. Regular Job Title:	*5*	*15*	*0*	c: This Mine:	*5*	*15*	*0*	d. Total Mining:	*5*	*15*	*0*

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
110 Komatsu 930E Haul Truck	*170 Crushed by Komatsu 930E Haul Truck*

13. Training Deficiencies:
Hazard: | New/Newly-Employed Experienced Miner: | Annual: | Task:

14. Company of Employment: (If different from production operator)
Operator
Independent Contractor ID: (if applicable)

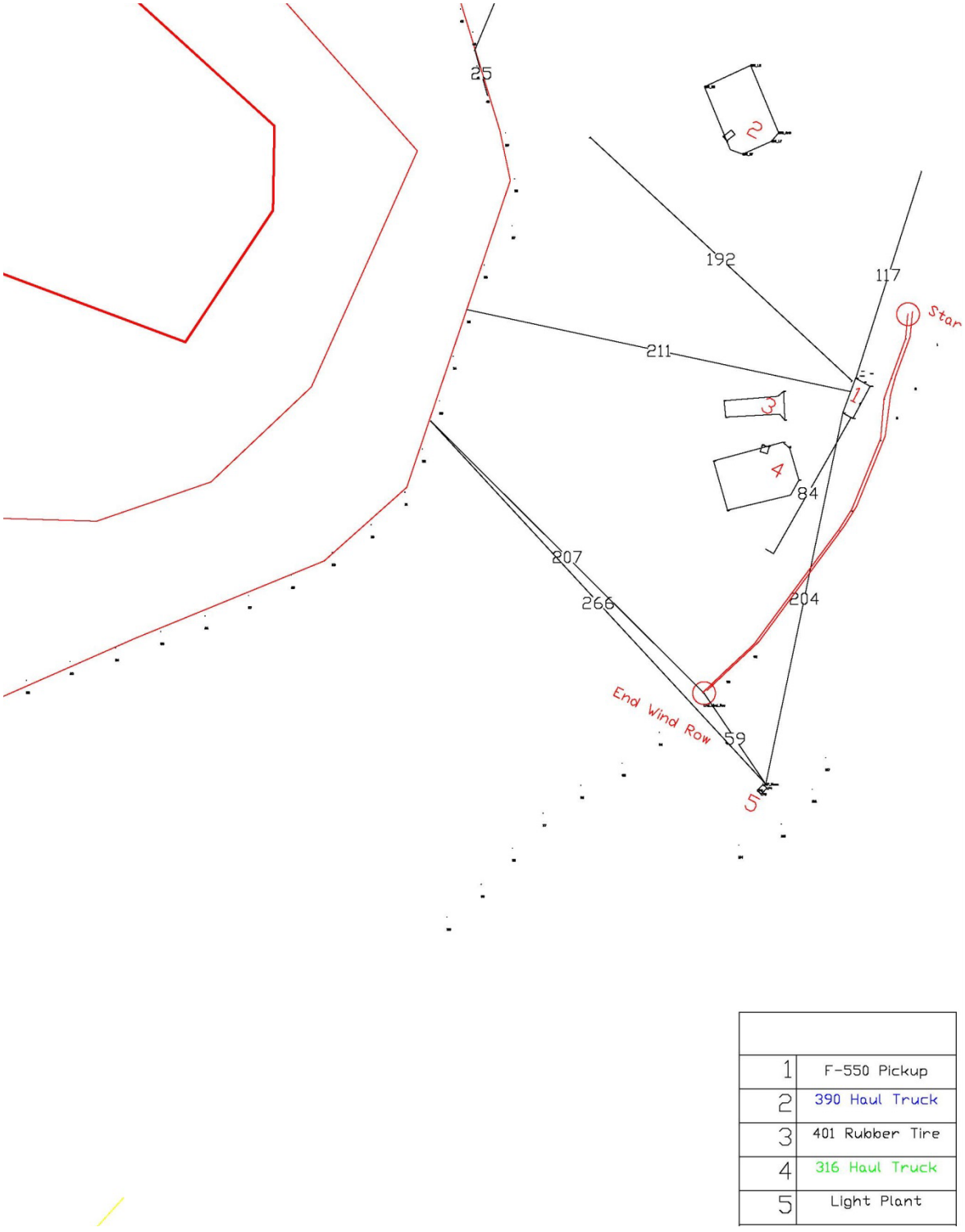
15. On-site Emergency Medical Treatment:
Not Applicable: | First-Aid: | CPR: | EMT: | Medical Professional: | None: X

16. Part 50 Document Control Number: (form 7000-1)

17. Union Affiliation of Victim: *2605* *United Steel Workers of America*

APPENDIX C

Dump Site Schematics



1	F-550 Pickup
2	390 Haul Truck
3	401 Rubber Tire
4	316 Haul Truck
5	Light Plant

Figure 1: Final Accident Scene Vehicle Locations

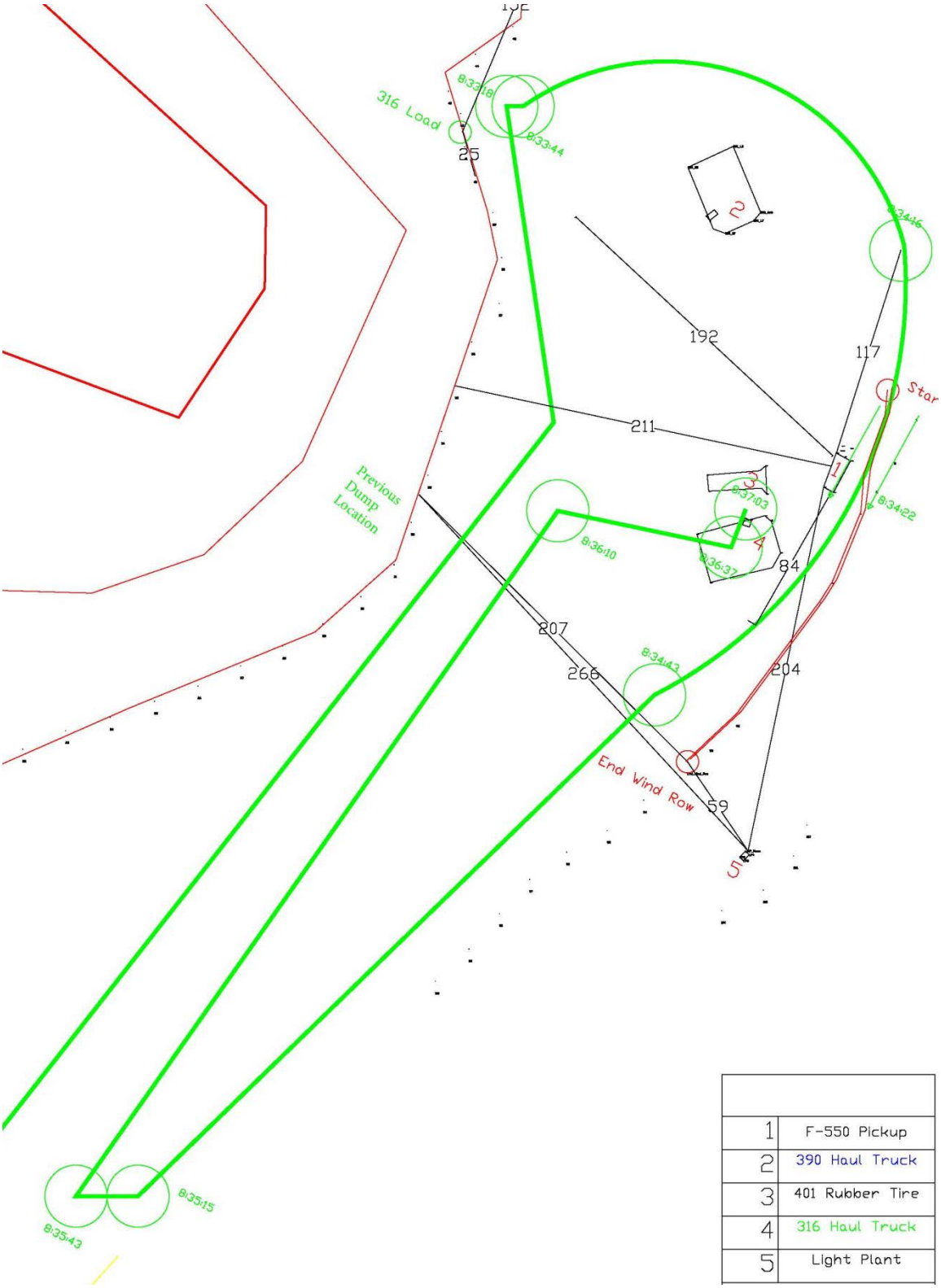


Figure 2: Path of Truck 316