

WORKER RUN OVER BY RAIL CAR

Type of Incident: Fatality

Date of Incident: June 3, 2013

DATE AND TIME OF INCIDENT

The incident occurred on June 3, 2013, at approximately 7:10 a.m.

NAME AND ADDRESS OF PRINCIPAL PARTIES

Owner(s)

Arrow Reload Systems Inc.
6380 Ogden Dale Road SE
Calgary, Alberta
T2C 3A9

Prime Contractor

Not applicable.

Employer(s)

Arrow Reload Systems Inc.
6380 Ogden Dale Road SE
Calgary, Alberta
T2C 3A9

Contractor(s)

Not applicable.

Supplier(s)

Not applicable.

Worker(s)

(*****
(*****
(*****
(*****)

(*****
(*****
(*****
(*****)

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(*****
(*****
(*****)

Others

Calgary Fire Department, Calgary Police Service, Calgary EMS, Canadian Pacific Police Service and a representative from the Office of the Chief Medical Examiner were on site.

DESCRIPTION OF PRINCIPAL PARTIES

Arrow Reload Systems Inc. was established in 1988 to provide trucking and railcar reloading services for Canadian Pacific Railway (CPR). Arrow Reload Systems Inc. is a subsidiary of Arrow Transportation Systems Inc., located in Vancouver, British Columbia.

The Arrow Reload Systems Inc. Calgary, Alberta facility is located on a 6.5 acre portion of the Ogden CP Yard. At its Transfer Facility, Arrow Reload Systems Inc. unloads and loads steel beams, steel plate, rebar, steel coils, girders and bulk metal containers from boxcars, flatcars, gondolas, bulk cars, trucks, containers and dry vans.

General laborer 1 (*****) had been employed by Arrow Reload Systems Inc. at the Ogden CP Yard for approximately three years and three months. General labourer 1 (*****) had 23 years of previous rail yard experience working for Bates Equipment (1974) Ltd., at the same location.

The operations supervisor (*****) operated the crane and the front-end loader and had 23 years' experience. General labourer 2 (*****) had 9 months experience.

LOCATION OF INCIDENT

The incident took place in the Arrow Reload Systems Inc. Transfer Facility at the CP Yard located at 6380 Ogden Dale Road SE, Calgary, Alberta (Refer to Attachment A – Map and Attachment B – Photograph 1)

EQUIPMENT, MATERIAL AND OBSERVATIONS

Equipment and Material

The equipment involved in the incident consisted of four steel coil railcars (Railcar A – (*****); Railcar B – (*****); Railcar C – (*****); Railcar D – (*****)) and a front-end loader (Volvo Construction Equipment North America Inc., Model Number L120E, Product Identification Number (*****)).

Railcar A was empty and the coil cover had been removed by crane and positioned adjacent to the east side of the tracks inside the Transfer Facility.

Railcars B, C, and D were loaded with the coil covers in place and were connected in a three car chain. The front-end loader was used to nudge the three car chain into the building for the purpose of connecting the three car chain to Railcar A.

The Transfer Facility is 36.576 meter x 27.432 meter. Inside the facility is an overhead crane with a lifting capacity of 13607 kilograms. The single set of railroad tracks run through the building in a north /south orientation and the loading dock is located on the west side of the building. There is sufficient room inside the facility for a truck with a flatbed trailer to be parked to the east of the railroad tracks in order to be loaded by crane with materials removed from the rail cars. There is also a vehicle loading dock located at the southwest portion of the Transfer Facility to accommodate the loading of trucks with box trailers. (Refer to Attachment B – Photograph 2)

Observations

Not applicable.

NARRATIVE DESCRIPTION OF THE INCIDENT

On June 3, 2013, a crew consisting of the operations supervisor (*****), general laborer 1 (*****), general laborer 2 (*****), started their shift at 5:30 a.m. A brief discussion had been held outlining the details of the work to be undertaken during the course of the shift which was expected to be finished by approximately 2:30 p.m.

General laborer 1 (*****), assisted by general laborer 2 (*****), were tasked with moving the three loaded steel coil railcars (Railcar B – (*****); Railcar C – (*****); Railcar D – (*****)) from the staging area in the yard on the north side of the Transfer Facility into the Transfer Facility for unloading during the day. The empty and uncovered steel coil railcar (Railcar A – (*****)) was located inside the Transfer Facility and was to be connected to the loaded lead railcar in the chain (Railcar B – (*****)) and moved outside on the south side of the Transfer Facility in order for the loaded cars to be positioned

for off-loading.

At approximately 7:05 a.m., the chain of three loaded steel coil railcars had been prepared for movement into the Transfer Facility. When the brakes on the three car chain were released, there was no immediate gravity movement of the railcars southbound on the track into the Transfer Facility. Under usual conditions, the slight decline in the lay of the rails allows for the railcars to be rolled into the Transfer Facility at approximately 4.83 kph to 8.05 kph (walking speed). The rate of movement is controlled through the use of a mechanical brake wheel operated by a worker positioned on the railcar platform. (Refer to Attachment B – Photograph 3) When a three car chain is in motion, there are two workers required to operate the mechanical brake wheels, one worker on the front platform of the first railcar and the second worker on the rear platform of the third railcar.

Due to the lack of motion of the three car chain upon release of the brakes, the operations supervisor (*****) was asked to use the front-end loader to nudge the three car chain into motion southbound into the building. A brief push with the front-end loader started the three car chain in motion. (Refer to Attachment B – Photograph 4)

Railcars located on a down slope are allowed to move by gravity when the worker/brakeman is positioned to operate the mechanical brake wheel. The railcar could also be nudged by the front-end loader or a forklift in order to start the railcar rolling. The worker/brakeman would then be in control of one or two railcars. If three railcars were being moved, a second worker/brakeman would be required on the rear platform of the third railcar to operate its mechanical brake wheel.

In situations where the railcars needed to be moved on an upslope, the front-end loader would be used to pull the railcars. The brakes would be applied but would be sufficiently free to move the one or two railcars into position. The use of workers/brakemen on the railcars was the only way to fully control the moving railcars even at the very low speeds utilized for entering and exiting the Transfer Facility.

General laborer 1 (*****) was positioned on the south (front) platform of Railcar B (*****) operating the mechanical brake wheel from the west side of the platform. After the three car chain had begun to move, the operations supervisor (*****) had shut down and exited the front-end loader, climbed aboard the rear platform of Railcar D (*****) and applied the mechanical brake per the three car chain procedure. The three car chain was then moving at walking speed into the Transfer facility. (Refer to Attachment B – Photograph 5)

At 7:10 a.m., when the lead railcar was approximately 6 metres inside the north end of the Transfer Facility, general laborer 1 (*****) crossed the south (front)

platform from the west side to the east side and attempted to use the two rung ladder to descend from the lead car possibly with the last minute intention of approaching the empty steel coil railcar (Railcar A – (*****)) and climbing the ladder onto its platform. It was at this point that general laborer 2 (*****) observed general laborer 1's (*****) jacket appear to get caught on the left upright of the platform ladder causing him to swing out in a leftward arc resulting in his body striking the coil cover that was located approximately 0.8 metres adjacent to the east side of the track. The coil cover was positioned parallel to the tracks and after coming into contact with the coil cover, general laborer 1 (*****) bounced and rolled down the west side of the coil cover, onto the east side of the track, and under the wheels of the first two loaded steel coil railcars (Railcar B – (*****) and Railcar C – (*****)). General laborer 1 (*****) suffered fatal injuries. (Refer to Attachment B – Photograph 6)

General laborer 2 (*****) was seated in a small forklift located on the north side exterior of the Transfer Facility, at the area to the rear of the front-end loader when he observed the incident.

General laborer 2 (*****) quickly ran over to general laborer 1 (*****) to assess his condition. When general laborer 2 (*****) was unable to elicit a response from general laborer 1 (*****) he ran over to a worker who had just entered the facility to advise him that general laborer 1 (*****) had been badly injured. He then ran over to operations supervisor (*****), who had gone back to move the front-end loader when the three car chain had stopped, and advised him that general laborer 1 (*****) was on the ground.

Paramedics and emergency services were summoned to the worksite immediately and declared general laborer 1 (*****) deceased at the scene.

ANALYSIS

Contributing Factors

Not applicable

FOLLOW-UP/ ACTION TAKEN

Alberta Jobs, Skills, Training and Labour, Occupational Health and Safety

On June 3, 2013 at 8:30 a.m., Occupational Health and Safety (OHS) received an incident notification from the Division Manager for Arrow Reload Systems Inc., (*****).

On June 3, 2013 at 8:30 a.m., OHS attended the Arrow Reload Systems Inc. site and met with the Arrow Reload Systems Inc. Division Manager (******) and the Regional Manager (*****). The incident was then reviewed and OHS commenced an incident investigation.

On June 3, 2013, OHS issued the following Demands to Arrow Reload Systems Inc.:

- Conduct an investigation into the incident to determine the circumstances, causes, and preventative measures to be taken to prevent a recurrence of a similar incident as well as prepare a report for review by OHS.
- A copy of the site hazard assessment for the task being performed by the affected worker at the time of the incident.
- Copies of additional documentation including:
 - Safe Work Procedures associated with the task being performed by the affected worker at the time of the incident
 - A copy of the Arrow reload Systems Inc. Health and Safety manual
 - Employment, training and orientation records for the affected worker
 - Pay stubs for the months of May and June 2013
 - Copy of the contractual arrangements between Arrow reload Systems Inc. and Canadian Pacific Railway
 - Copy of Canadian Pacific Railway safety requirements for work being performed by Arrow Reload Systems Inc. personnel at the Canadian Pacific Ogden Yard
 - Copies of Arrow Reload Systems Inc. safety meeting minutes for the months of January 2013 through May 2013.

Additional Measures

Following the incident, operations were suspended until Monday, June 10, 2013. During this period, training, supervision, and communication were reviewed and immediate and long term strategies for prevention were implemented. This included individual and group meetings to review the events related to the incident, known procedures, hazards, accepted and common practices.

Canadian Hartland Training attended the facility to review the Calgary Reload General Operating Instructions which were the original training materials used for the September 2011 certification process.

Specific practices were modified and immediately implemented:

- Brakemen, when required, must be on the railcars before any movement is made;
- No climbing, on or off is permitted
- Railcar movements involving one or two railcars can be performed with one brakeman; three railcars in a string must have two brakemen at the mechanical brake wheels;
- The maximum number of railcars which can be moved at any time, regardless of circumstances, is 3.
- Workers on the site received training in the conducting of peer observation;
- The Inventory of Occupations was modified to include more of the specific jobs and tasks associated with the reload operations;
- Associated with both of these tasks was the modification and re-introduction and training of the risk assessment process for railcar moves and the other tasks on site;

Within 60 days of the incident, Arrow Reload Systems Inc. acquired a track mobile shuttle vehicle to move railcars within the two sections of tracks of the facility. Once it was acquired, worker training and certification took place and this action completely eliminated the need, regardless of railcar configuration, for workers to man the brake positions when moving railcars. (Refer to Attachment B – Photographs 7 and 8)

Attachment A: Map

Attachment B: Photographs

Signatures

Original Report Signed
Lead Investigator

March 7, 2014
Date

Original Report Signed
Manager

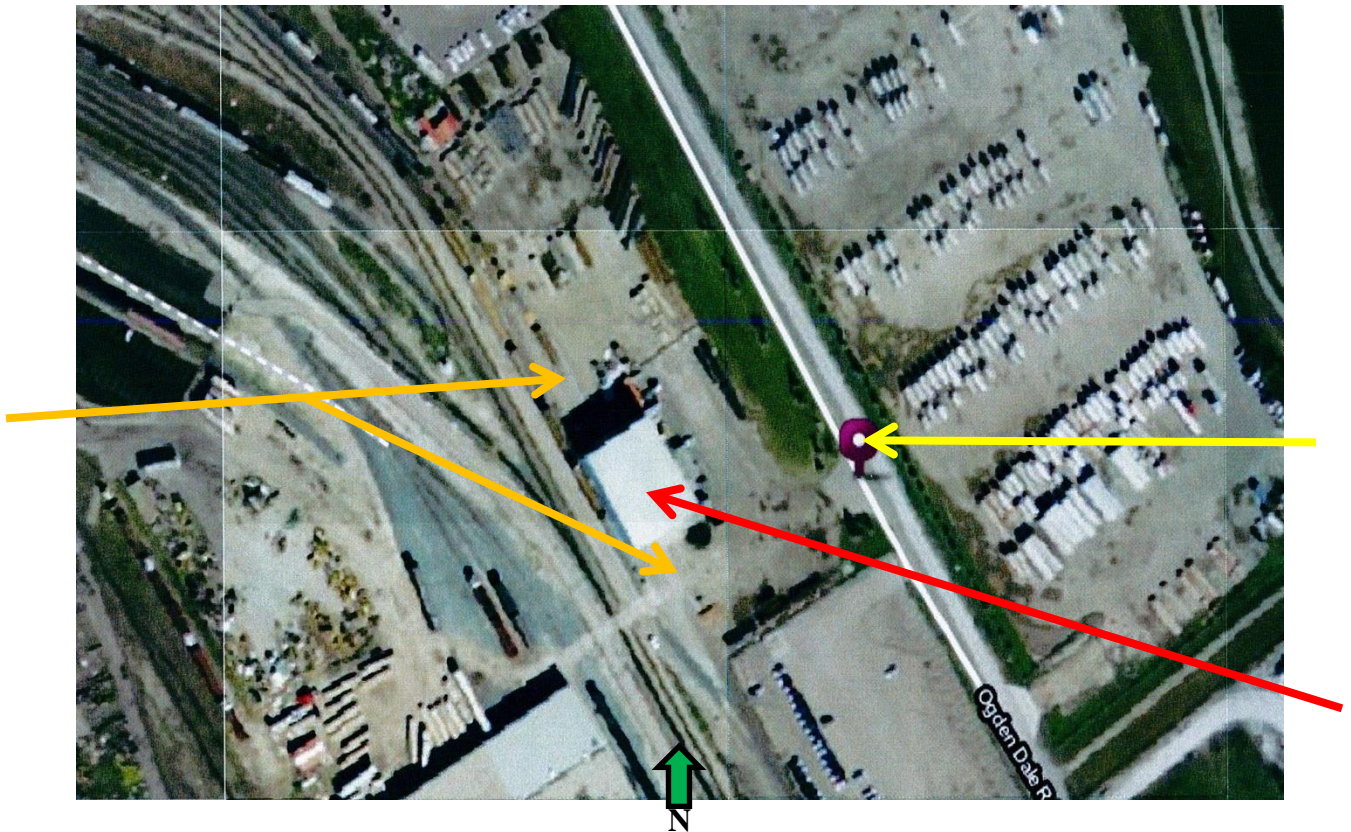
March 7, 2014
Date

Original Report Signed
Director

July 17, 2014
Date

Arrow Reload Systems Inc.

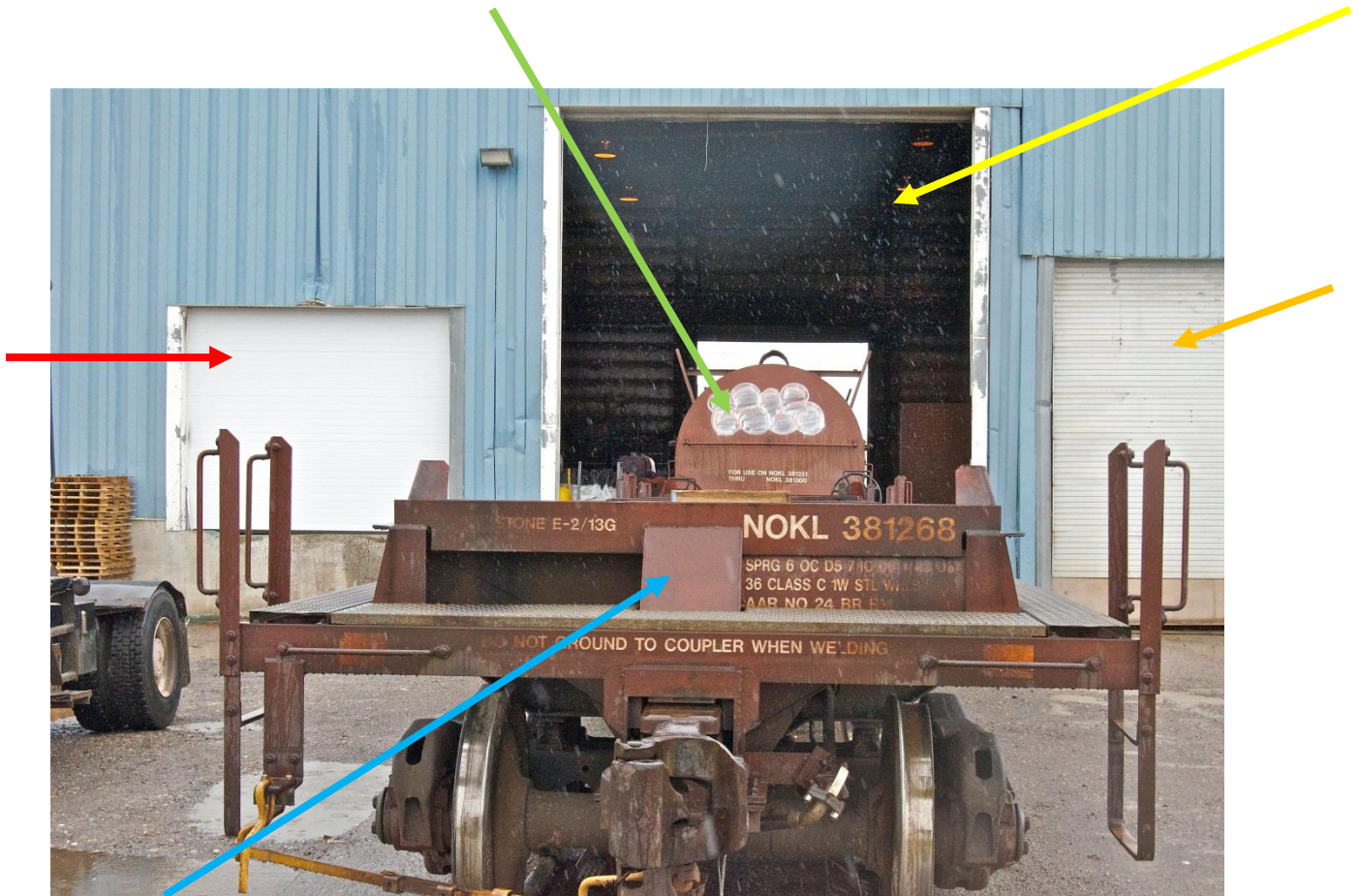
File: F-OHS-042643-389D3
Attachment A
Map



Yellow arrow shows the location of the site where the incident occurred at Arrow Reload Systems Inc. within the Ogden CP yard, 6380 Ogden Dale Road SE, Calgary, Alberta, T2C 3A9. The **red arrow** shows the location of the Arrow Reload Systems Inc. Transfer Facility where the incident occurred. The **orange arrows** indicate the location of the north/south track that passes through the Transfer Facility. The **green arrow** illustrates northward orientation

Arrow Reload Systems Inc.

File: F-OHS-042643-389D3
Attachment B
Photograph 1 of 8



Photograph 1 – Shows the south side of the of the Arrow Reload Systems Inc. Transfer Facility, located at 6380 Ogden Dale Road SE, Calgary, Alberta, T2C 3A9, and the empty flat-bedded steel coil car, Railcar A (*****). The **red arrow** shows the vehicle loading dock door on the west side of the track. The **orange arrow** shows the south vehicle access door and the **yellow arrow** shows the south railcar door. The **green arrow** shows Railcar B (*****). and the **blue arrow** shows Railcar A.

Arrow Reload Systems Inc.

File: F-OHS-042643-389D3
Attachment B
Photograph 2 of 8



Photograph 2 – Shows the interior of the Arrow Reload Systems Inc. Transfer Facility with the coil cover from Railcar A (*****) on the east side of the track adjacent to the loaded steel coil railcar C (*****). The **red arrow** shows Railcar C; the **yellow arrow** shows the overhead crane; the **green arrow** shows the coil cover from Railcar A.

Arrow Reload Systems Inc.

File: F-OHS-042643-389D3
Attachment B
Photograph 3 of 8



Photograph 3 – Shows Railcar A (*****) connected to Railcar B (*****) just outside the south rail door. General laborer 1 (*****) was situated on the west side of the front platform of Railcar B operating the mechanical brake wheel when he attempted to descend the two rung ladder located on the east side of the front platform. The **red arrow** shows Railcar A; the **yellow arrow** shows Railcar B; the **green arrow** shows the platform on the south end of Railcar B; the **blue arrow** shows the mechanical brake wheel; the **orange arrows** show the two rung ladder on the east side of the south platform on Railcar B.

Arrow Reload Systems Inc.

File: F-OHS-042643-389D3
Attachment B
Photograph 4 of 8



Photograph 4 - Shows the front-end loader, Volvo Construction Equipment North America Inc., Model Number L120E, Product Identification Number (*****), that was used to nudge the three car chain from the north end of the track into the Arrow Reload Systems Inc. Transfer Facility. The **red arrows** show the forks assembly. The **green arrow** shows the towing straps located at the rear of the loader.

Arrow Reload Systems Inc.

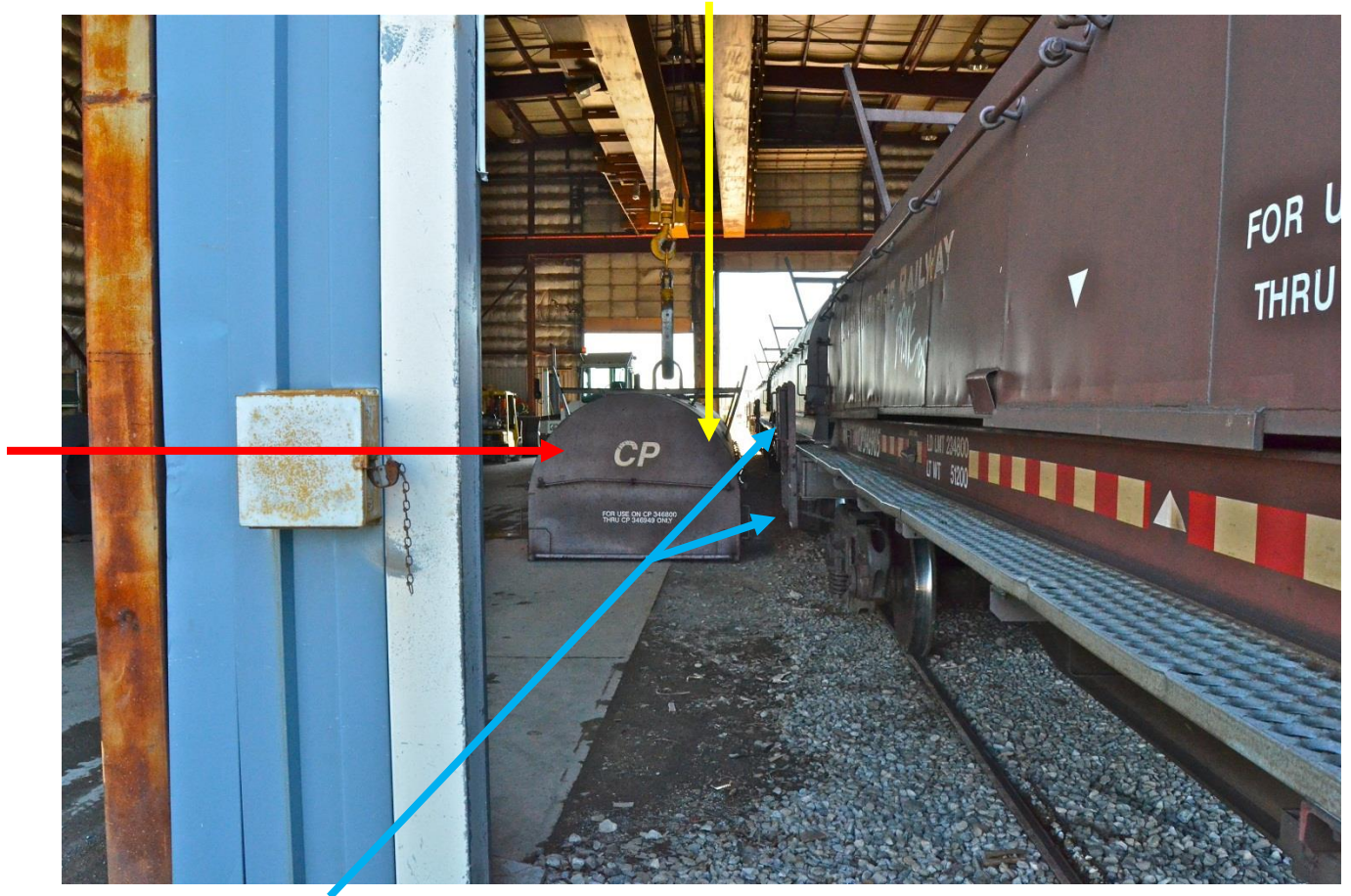
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Attachment B
Photograph 5 of 8



Photograph 5 – Shows the north side of the Arrow Reload Systems Inc. Transfer Facility. Railcar D (*****) is just inside the Transfer Facility railcar entrance. The **red arrow** shows the north vehicle access door; the **yellow arrow** shows the north railcar door; the **orange arrow** shows Railcar D; the **green arrow** shows the pedestrian entrance to the loading dock on the west side of the tracks

Arrow Reload Systems Inc.

File: F-OHS-042643-389D3
Attachment B
Photograph 6 of 8



Photograph 6 – Shows the positioning of the coil cover from Railcar A (*****) on the ground adjacent to the east side of the track. . General laborer 1 (*****) struck the upper right side of the coil cover when attempting to descend the two rung ladder on the east side of the south platform of Railcar B (*****) and rolled down the west rear side of the coil cover and under the wheels of Railcar B and Railcar C (*****). The **red arrow** shows the Railcar A coil cover; the **yellow arrow** shows the approximate impact point; the **blue arrow** shows the positioning of the ladder on the railcar in relation to the position of the adjacent coil cover.

Arrow Reload Systems Inc.

File: F-OHS-042643-389D3
Attachment B
Photograph 7 of 8



Photograph 7 – Shows the Arrow Reload Systems Inc. track mobile Shuttlewagon acquired within 60 days of the incident. This vehicle is used to move railcars within the two sections of tracks of the facility. The use of this vehicle has completely eliminated the need, regardless of railcar configuration, for workers to man the brake positions when moving railcars. The **yellow arrow** shows the Shuttlewagon; the **orange arrow** shows a towed open top boxcar.

Arrow Reload Systems Inc.

File: F-OHS-042643-389D3
Attachment B
Photograph 8 of 8



Photograph 8 – Shows the track mobile shuttle vehicle moving a boxcar from the Arrow Reload System Inc. Transfer Facility. New procedures dictate the use of spotters during the shuttle operations. The **orange arrow** shows the spotter; the **blue arrow** shows the Shuttlewagon; the yellow **arrow** shows the air brake line and knuckle connections to the towed open top boxcar.