

National Transportation Safety Board

Office of Railroad, Pipeline and Hazardous Materials

Washington, DC 20594



RRD24LR012

MECHANICAL

Group Chair's Factual Report

September 25, 2024

TABLE OF CONTENTS

A	ACCIDENT.....	3
B	MECHANICAL GROUP	3
C	SUMMARY	3
D	TRAIN SUMMARY AND INSPECTIONS.....	3
1.0	WORK ENROUTE	4
2.0	TRAIN INSPECTIONS.....	4
3.0	LOCOMOTIVE INSPECTIONS	4
E	POST ACCIDENT NON-DERAILED EQUIPMENT INSPECTION	4
F	DERAILED EQUIPMENT.....	6

A ACCIDENT

Location: Bordulac, ND
Railroad: CPKC Railway
Date: July 5, 2024
Time: 3:36 AM
Train: 242-03

B MECHANICAL GROUP

Group Chair Milo Voigt
FRA
Railroad Safety Inspector

Group Member Brian Ramey
FRA
Railroad Safety Inspector

Party Coordinator Bradley Robertson
CPKC Railway
VP Mechanical Car

C SUMMARY

See IIC summary in accident docket.

D TRAIN SUMMARY AND INSPECTIONS

Train 242-03 consisted of 126 loads, 25 empties, 8,850 feet, and 17,975 tons as it approached Bordulac, ND. It was powered by a single locomotive, CP 8882 on the head end of the train and a single distributed power locomotive, KCSM 4535 on the rear. The train picked up 29 cars on the head end at Harvey to make up the totals approaching the derailment site.

The train was designated a key train. The train contained 84 cars carrying hazardous material, including 21 loads of Anhydrous Ammonia (poison inhalation), 9 tank cars of Methanol (flammable liquid), 53 Hazmat tank cars, and one Hazmat non-tank car.

Lines 48-76 (29 cars) were derailed at MP 343.4. The derailed cars included 12 loads of propylene plastic pellets, and the 17 derailed tank cars included 11 containing anhydrous ammonia and six containing methanol.

1.0 Work Enroute

Train 242-03 performed three work events between its origin in Lambton Park, AB and the derailment in Bordulac, ND.

Date	Location	Work Performed	Conductor Comments
July 3	Red Deer, AB	Set out 2 cars/Pick up 13 cars	All OK
July 4	Dunmor, AB	Pick up 13 cars	All OK
July 4	Harvey, ND	Pick up 29 cars	One extra car/paperwork updated

2.0 Train Inspections

The train was given an initial terminal safety and Class 1 FRA air brake inspection by carmen at Lambton Park Yard, AB on July 2, 2024 at 2100 and 0100. The train was given a second safety and FRA class 1 air brake test by carmen in Moose Jaw, AB on July 4, 2024 at 11:13 AM. Cars picked up at Harvey were inspected by operating employees.

3.0 Locomotive Inspections

Train 242-03 was powered by 2 locomotives, the CP 8882 was a single locomotive on the head end of the train and KCSM 4535 was a single DP locomotive on the rear of the train. Both locomotive inspection records were reviewed on scene by the investigative team with no issues noted.

E POST ACCIDENT NON-DERAILED EQUIPMENT INSPECTION

Mechanical investigators performed an inspection of the non-derailed equipment. The equipment on the east end between the head-end locomotive and the derailment consisted of 1 locomotive and 47 cars, the inspection was completed on July 5, 2024. The equipment on the west end between the DP locomotive and the derailment consisted of 76 cars and 1 locomotive, the inspection was completed on July 6, 2024.

Investigators documented damage to the last cars to 12 cars to have crossed the derailment location. These cars were re inspected on July 6th with the following defects noted.

Line Number	Car Number	Defect
36	TILX 500727	#1 axle contact with draft sill
37	TILX 500866	#1 axle contact with draft sill
38	TILX 500886	#1 axle contact with draft sill
39	TILX 500825	#1 axle contact with draft sill
40	SHQX 10765	#4 axle contact with draft sill, rail impact marks on R1, R3, and R4 wheels
41	SHQX 10687	#4 axle contact with draft sill, rail impact marks on R1, R2, R3 and R4 wheels

42	TILX 500738	#1 axle contact with draft sill, rail impact marks on L2 wheel
43	TILX 500913	#4 axle contact with draft sill, rail impact marks on R2 wheel
44	TILX 500961	#1 axle contact with draft sill
45	PROX 45410	#1 axle contact with draft sill, Buffer castings on the A and B ends broken, rail impact mark on L3 wheel
46	PROX 43474	#1 axle contact with draft sill, Buffer castings on the A and B ends broken, rail impact mark on the L2 wheel
47	CTCX 300366	A end knuckle broken. The A end coupler shank is straight, the coupler draft key is bent.



Figure 1- Exemplar photograph of the axle contacting the draft sill on car TILX500825



Figure 2- Exemplar photograph of a damaged buffer casting on car PROX43474



**Figure 3- Exemplar photograph of broken rail
Witness mark on wheel of car SHQX 10687**

F DERAILED EQUIPMENT

The following equipment, lines 48 through 76 were derailed. These cars contained anhydrous ammonia, methanol, and propylene plastic pellets.

Line Number	Car Number	Car Type	L/E	Contents	Weight (tons)
48	PROX 045220	T178	L	Methanol	131
49	UTLX 971162	T849	L	Anhydrous Ammonia	142
50	TILX 500864	T849	L	Anhydrous Ammonia	141
51	TILX 500752	T849	L	Anhydrous Ammonia	141
52	TILX 500890	T849	L	Anhydrous Ammonia	141

53	SHQX 010732	T419	L	Anhydrous Ammonia	141
54	TILX 500730	T849	L	Anhydrous Ammonia	141
55	TILX 501050	T849	L	Anhydrous Ammonia	141
56	UTLX 971273	T849	L	Anhydrous Ammonia	141
57	TILX 501231	T849	L	Anhydrous Ammonia	142
58	SHQX 010754	T419	L	Anhydrous Ammonia	140
59	SHQX 010805	T419	L	Anhydrous Ammonia	140
60	CTCX 300362	T178	L	Methanol	131
61	TILX 355610	T178	L	Methanol	131
62	MFCX 132265	T209	L	Methanol	131
63	CTCX 300358	T178	L	Methanol	131
64	CTCX 732476	T178	L	Methanol	131
65	NCLX 004142	C214	L	Propylene Pellets	132
66	NCIX 220194	C214	L	Propylene Pellets	140
67	NCIX 007549	C214	L	Propylene Pellets	143
68	NCLX 004131	C214	L	Propylene Pellets	139
69	NCIX 008594	C214	L	Propylene Pellets	142
70	UTCX 054421	C214	L	Propylene Pellets	130
71	NCLX 004243	C214	L	Propylene Pellets	130
72	NCIX 007781	C214	L	Propylene Pellets	143
73	NCIX 001814	C214	L	Propylene Pellets	129

74	NCIX 007754	C214	L	Propylene Pellets	143
75	NCIX 006877	C214	L	Propylene Pellets	143
76	NCIX 001833	C214	L	Propylene Pellets	129

Submitted by:

Ben Strot
Railroad Accident Investigator