

CleverCAD Incident Manager

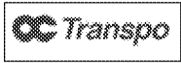
Richards

April 26 2022

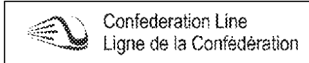
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Incident: 216783 (Current Revision # 16, 9/19/2021 16:12:38)
 Form: L1 Operational Event Service Issue

Printed at: 9/23/2021 11:42:50



Service Issue



Transportation Services Department
 Transit Operations
 875 Belfast Rd
 Tel: 613-580-2424 ext 53611



Summary

Department: L1 Operational Event
 Incident Type: Service Issue
 Incident Created: 9/19/2021 12:13:18
 Status: Open
 Owned By: Vivek Sharma
 Incident Start: 9/19/2021 13:44:42
 Incident End:

Employee Badge:
 Employee:
 Vehicle: LRV21 - Alstom CS
 Coupled LRV.: LRV3
 8
 LRT Station:
 LRT Platform: Westbound
 Area Affected: LRV

Service Issue: Other

Other Issue.:

Event Impacts End to End Travel Times: Yes

Link to Other Incident? Yes
 Is Safety Critical?: Yes

Service Issue Details: ETEL was activated at RID STN and stated that there is burning smell.

MLC started to look into all the trains for burning smell. There was no success. ERS at terminus checked all incoming trains and could not smell any burning smell.

SCU called and informed MLC that train which left TRE STN T1 fire on the outside on trailing LRV 12

YCC informed us there is some problem with the train which left TRE STN T1

12:04 - Train EB west of SWT 315 and SWT 315 is disturbed.

12:04 - System hold.

12:04 - SWT 315 disturbed.

12:11 - TOP 216782 in effect.

12:18 - Line 5 in place.

Manual announcements are being played at all STN.

12:21 - GT R King entered the limits.

12:25 - 2 SCU entered the limits.

12:26 - Alstom tech Gurpal entered the limits.

12:38 - Train 01/04 entered the limits at TRE T2 TOP# 216782

12:36 - 12 OFD and 6 SCU entered the limits. GT King reporting SWT 315 is completely damaged.

12:28 - Supt F Mesic enter the limits.

12:40 - GT R King confirms train is derailed.

OFD Chief requesting OCS power down. (Dean Foaster)

13:00 - Passengers disembarked the train 21/38 and outside the TRE high rail access gate. Confirmed by Supt. F Mesic.

Alstom Tech reporting not to lower the pantograph on LRV 12 as it is hooked on to the OCS.

13:01 - TOP # 216798 superseding TOP # 216782

13:03 - Service is completely cancelled.

13:12 - TOP # 216789 transferred to Supt. F Mesic.

Request from OPS and TSB to have train inspected on site at TUN-E for any defects or missing parts etc, as it was the last train to pass the area of the derailed train.

1500- Supritendant F. Mesic requesting TOP extension to Blair Station.

1520- ERO P. Keir powered down train 06/321 and 30/41 at Blair as there was no Alstom tech available as we need the area de-energised.

1526-TOP # 216851 Issued to Supritendant F. Mesic

Attachment

Remarks

Associated Incidents

Owned By: Alan Wong Incident Type: Vehicle Operator:
State: Closed Event Type: AddDTS:

Incident: 216798 Departmer: L1 Track Vehicle:
Owned By: Vivek Sharma Incident Type: Track Occupancy Operator:
 Permit AddDTS:

State: Closed Event Type: AddDTS:
Incident: 216785 Departmer: L1 Mainline Event Vehicle: LRV21 - Alstom C5
Owned By: Alan Wong Incident Type: Vehicle Operator:
State: Closed Event Type: AddDTS:

Incident: 216782 Departmer: L1 Track Vehicle:
Owned By: Vivek Sharma Incident Type: Track Occupancy Operator:
 Permit AddDTS:

➤ Addendum

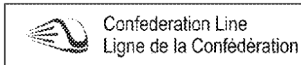
CleverCAD Incident Manager

Incident: 216785 (Current Revision # 3, 9/19/2021 12:36:18)
 Form: L1 Mainline Vehicle Event

Printed at: 9/19/2021 18:37:51



Mainline Vehicle Event



Transportation Services Department
 Transit Operations
 875 Belfast Rd
 Tel: 613-580-2424 ext 53611



Summary

Department: L1 Mainline Event	Employee Badge:	Vehicle Problem: Derailment
Incident Type: Vehicle	Vehicle: LRV21 - Alstom CS	If Other Issue:
Incident Created: 9/19/2021 12:09:04	Coupled LRV.: LRV38	Device Identifier:
Status: Closed	Cab?:	Multiple IOS Codes?: <input type="checkbox"/>
Owned By: Alan Wong	Is LRV Mobile?: No	IOS Code 1:
Incident Start: 9/19/2021 12:09:19	LRT Platform: TRE-W	IOS Code 2:
Incident End:	Chainage.:	IOS Code 3:
Is Safety Critical?: Yes		IOS Codes on Both LRVs?:
Link to Other Incident?		Customer Caused?: No
Obstruction Plan?: Yes		Time Removed From Service:
If yes, complete Obstruction Plan Details section below		Replacement Available?: Yes
		EB?:
		Event Impacts End to End Travel Times: Yes
		Passenger Delays in Minutes:

Attending or Reporting RTM Employee

Vehicle Details: 12:02:51 CC car of LRV 21 appears to derail when departing TRE-W. After passing SWT315 the switch went disturbed. Footage is bookmarked. There was a loose panel near the bogey before the incident.

OFFICE USE ONLY: Help Desk Number: 114870 Help Desk Status: Closed

Form information

- **Incident Status:** "Open" until all mandatory and any other pertinent information regarding event has been entered in the report, at which point it can be switched to "Closed"
- **Incident End:** Time when semi-regular or regular operations have returned (obstruction has been removed or when the LRV is again mobile and either in service or on its way to the MSF)
- **Vehicle:** LRV which is currently experiencing an incident (with the Secondary LRV being defined as the Coupled LRV)
- **Time Removed From Service:** Time when the LRV exited the mainline following a forced unscheduled removal
- **Passenger Delay:** Maximum gap (minutes) in service experienced by customers (limited to Mainline Stations in each direction; not limited to individual platforms nor does it include time spent using R1 buses)

Obstruction Plan Details

Obstruction Plan Required?: Yes
 Plan Type:
 Plan Number:
 Start Platform:
 End Platform:
 Time Requested:
 Time Implemented:
 Time Cancelled:

Additional Plan Details:

IMIRS

Vehicle Event	Incident LRV: LRV21 - Alstom CS	Vehicle Issue: Derailment
VEH Incident Start: 9/19/2021 12:09:19	Coupled LRV: LRV38	Other Issue:
	Cab?:	Device ID:

VEH Incident End: [Redacted]
VEH Safety Critical: Yes
VEH Obstruction Plan: Yes

LRV Mobile?: No
LRT Platform: TRE-W
Chainage: [Redacted]

IOS Code 1: [Redacted]
IOS Code 2: [Redacted]
IOS Code 3: [Redacted]
IOS Codes on Both LRV's?: [Redacted]

Vehicle Details: 12:02:51 CC car of LRV 21 appears to derail when departing TRE-W. After passing SWT315 the switch went disturbed. Footage is bookmarked. There was a a loose panel near the bogey before the incident.

IMIRS Comments:

Help Desk Number: 114870

Help Desk Status: Closed

- > Attachment
- > Remarks
- > Associated Incidents
- > Addendums

CleverCAD Incident Manager

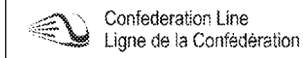
Incident: 216991 (ARCHIVED)(Current Revision # 25, 9/20/2021 3:53:06)

Printed at: 4/19/2022 16:47:13

Form: L1 Operational Event Miscellaneous



Miscellaneous Issue



Transportation Services Department
Transit Operations
875 Belfast Rd
Tel: 613-580-2424 ext 53611



Summary

Department: L1 Operational Event	Employee Badge:	Other Issue.:
Incident Type: Miscellaneous Event	Employee:	
Incident Created: 9/19/2021 22:02:18	Vehicle: LRV21 - Alstom CS	Event Impacts End to End Travel Times: Yes
Status: Closed	Coupled LRV.: LRV3	
	8	
Owned By: Leafloor, Derek T.	LRT Station:	
Incident Start: 9/19/2021 22:00:23	LRT Platform:	
Incident End: 9/20/2021 3:52:23	Area Affected: LRV	

Link to Other Incident? Yes

Is Safety Critical?: Yes

Misc Details: 22:03 - GT Aubin has requested himself and 5 others enter the guideway to inspect LRV11-LRV28 at UOT-E

22:21 - LRV01-LRV04 ready to move a bit EB from TRE-E

22:56 - LRV01-LRV04 on the move EB

22:59 - LRV01-LRV04 regained position and was reduced from the mainline.

23:02 - LRV11-LRV28 moving EB from just East of UOT-E.

23:13 - LRV11-LRV28 cannot pass SWT 316 because of yellow caution tape.

23:17 - Joel Lemieux has given permission to remove the caution tape in this area on track 02 so trains can reduce. As well, he has authorized that the train doors on LRV21-LRV38 be closed if there is no staff there monitoring it.

23:19 - GT Aubin removed the yellow caution tape and has confirmed SWT 316 is safe to traverse.

23:20 - RTM has confirmed LRV21-LRV38 is under surveillance all the time by FMT.

23:28 - LRV11-LRV28 exited the mainline.

23:35 - LRV24-LRV39 has begun reduction procedures from RID-E with RTM staff.

23:42 - LRV24-LRV39 has stopped just East of UOT-E for techs to inspect.

00:05 - LRV14-LRV20 has begun reduction procedures from PAR-E

00:14 - LRV24-LRV39 exited the mainline without incident.

00:17 - LRV14-LRV20 has stopped just East of UOT-E for techs to inspect.

00:29 - GT Aubin will now prepare LRV09-LRV40(TUN-W) and LRV05-LRV29(TUN-E) for reduction procedures.

00:35 - GT Aubin asked if he could determine the order of which trains in the West to reduce based on convenience because he is organizing everything. MLC agreed as long as RTM is fine with it.

00:46 - LRV05-LRV29 ready and authorized to depart TUN-E to TRE-E.

00:49 - LRV14-LRV20 exited the mainline without incident.

01:03 - LRV09-LRV40 is preparing for reduction procedures.

01:09 - ERO K.Thuya on LRV09-LRV40 reported he was at the Clear of all Switches sign for SWT 304 on track 01. MLC asked him if he would be accompanying the Techs on the guideway while they inspected the train. He responded that yes, he would. MLC then responded to please let us know when they would be ready to access MLC's TOP.

01:17 - MLC contacted ERO K.Thuya and asked when the Techs would be ready to access the TOP to begin prepping LRV09-LRV40 for reduction. The ERO then responded that they were almost finished and that the Techs were outside the train, but the ERO was still in the train.

MLC reminded ERO K.Thuya that he needed to contact MLC before entering our TOP.

Rail OPS have been made aware of this event.

01:25 - LRV05-LRV29 exited the mainline without incident.

01:36 - ERO P.Kier notified MLC that LRV06-LRV31(BLA-W) and LRV30-LRV41(BLA-E) will begin powering up and then reduction procedures.

01:45 - LRV02-LRV07 and Techs are now preparing for reduction procedures at BAY-W.

02:19 - LRV09-LRV40 exited the mainline without incident.

02:21 - LRV06-LRV31 commenced inspection before reduction.

02:25 - LRV32-LRV33 and Techs are now preparing for reduction procedures at RID-W.

02:51 - LRV32-LRV33 commenced inspection before reduction East of UOT-E.

02:59 - LRV02-LRV07 exited the mainline without incident.

03:06 - LRV06-LRV31 exited the mainline without incident.

03:09 - LRV30-LRV41 commenced inspection before reduction.

03:23 - LRV32-LRV33 exited the mainline without incident.

03:42 - LRV30-LRV41 exited the mainline without incident.

All healthy trains have been reduce from the mainline.
LRV21-LRV38 remains disabled at SWT 315 on track 01.
MLC owns TOP 216986
TPSS 4 Feeder breaker 03, TPSS 5 Feeder breaker 01 & 03, TPSS 6 Feeder breaker 01 are de-energized and LRV21-LRV38 is in that area.

On the instructions of RTM, no further activities will take place on the mainline tonight.

Attachment

Remarks

Associated Incidents

Incident: 216986	Department: L1 Track	Vehicle:
Owned By: Osman Abdi	Incident Type: Track Occupancy Permit	Operator:
State: Closed	Event Type:	Add DTS: 9/19/2021 21:25:51
Incident: 216948	Department: L1 Operational Event	Vehicle:
Owned By: Osman Abdi	Incident Type: Power Isolation Form	Operator:
State: Closed	Event Type:	Add DTS: 9/19/2021 19:01:22
Incident: 216892	Department: L1 Track	Vehicle:
Owned By: Osman Abdi	Incident Type: Track Occupancy Permit	Operator:
State: Closed	Event Type:	Add DTS: 9/19/2021 16:37:56
Incident: 216851	Department: L1 Track	Vehicle:
Owned By: Osman Abdi	Incident Type: Track Occupancy Permit	Operator:
State: Cancelled	Event Type:	Add DTS: 9/19/2021 15:06:32
Incident: 216833	Department: L1 Mainline Event	Vehicle: LRV5 - Alstom CS
Owned By: Aian Wong	Incident Type: Vehicle	Operator:
State: Closed	Event Type:	Add DTS: 9/19/2021 14:24:08
Incident: 216798	Department: L1 Track	Vehicle:
Owned By: Vivek Sharma	Incident Type: Track Occupancy Permit	Operator:
State: Closed	Event Type:	Add DTS: 9/19/2021 12:52:18
Incident: 216785	Department: L1 Mainline Event	Vehicle: LRV21 - Alstom CS
Owned By: Aian Wong	Incident Type: Vehicle	Operator:
State: Closed	Event Type:	Add DTS: 9/19/2021 12:14:25
Incident: 216783	Department: L1 Operational Event	Vehicle: LRV21 - Alstom CS
Owned By: Vivek Sharma	Incident Type: Service Issue	Operator:
State: Closed	Event Type:	Add DTS: 9/19/2021 12:13:20
Incident: 216782	Department: L1 Track	Vehicle:
Owned By: Vivek Sharma	Incident Type: Track Occupancy Permit	Operator:
State: Closed	Event Type:	Add DTS: 9/19/2021 12:11:18

Event Information Form

ERO Name and Number:

Abdirahman Adam ERO 7977

Train Number:

21 38

Time and Date:

Sept 19 2021

Location and Direction:

WEST of switch 319 Track 1

Nature of Delay

Door		Trespasser	#	OCS	
Passenger		ERO Error		Infrastructure	
Injury		Police Action		Switch	
Mechanical	✓	Weather		Track Obstruction	

Event Description

Last day ~~was~~ I work was Friday, shift

from 05:30 to 14:30 - 809-8 - I was off Sat 18/2021.

Yesterday Sat 18, 2021 was called for overtime

shift by superintendent M RIAZ - on to do

extra 809-12 - from 07:00 - 1500. The day was

going very well. ~~to~~

- I was assigned to be extra at Tunneyspasture st.

- my first trip to cover was at 09:37 round

trip. it was perfect trip

- Then I was assigned to another Trip at

11:27 East to Blair. on Train 2138

- When reached Rideau Centre, I smell in the

cab gas smell at same time some other ERS reported

- The gas smell cleared after ~~the~~ Ottawa University station

- when I arrived at Blair station ERS M. Abdu

and I ~~also~~ checked the gas in both trains noting

was found - later I learned the ERO gets sick

from smell on Train 0207:

- At 11:55 I departed Blair st to the west

leading CAB ~~35~~ Train 38 incl. - no issues

- I departed Syrcille normal speed no issues

- I departed Stn Laurent normal speed no issue
and Guide way was normal for train operations.

- I arrived at Trembly station west Track 1

- Train 2138 service the station with no issues

~~with the ERO~~ ~~at~~ Train Departed Trembly st

ERO Signature:

Date:

3

Event Information Form					
ERO Name and Number:					
Train Number:			Time and Date:		
Location and Direction:					
Nature of Delay					
Door		Trespasser		OCS	
Passenger		ERO Error		Infrastructure	
Injury		Police Action		Switch	
Mechanical		Weather		Track Obstruction	
Event Description					
<p>Track 1 no issues - After After the departure the train slowed down a little bit and then went back to normal speed. after the switch 315 the train came to stop and EB. I called Control to clear the EB. Control gave me authorization to clear the EB. Then Magnetic Brakes applied then they told me to not move the train and talk to the passengers and advise them evacuation procedure.</p>					

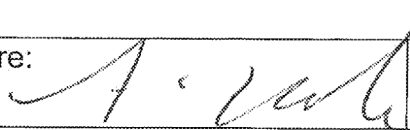
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I started PA announced informing customers about the situation and delays -

- Control instructed me to count number of customers on board. lucky no injuries and no passengers needed assistance
- There were 11 passengers.
- Sec arrived and Alstom tech.
- Fire department arrived and we evacuated all the passengers to safety.

I only noticed the ~~derailment~~ derailment on rear of train 21, when I got off the train and counting customer. Before all of this mechanical problem, I didn't hear any noise.

ERO Signature:



Date:

Sept 19 2021



Safety Occurrence Investigation Report

Occurrence Information

<input type="checkbox"/> Injury to Employee <input type="checkbox"/> Injury to Other <input checked="" type="checkbox"/> Damage <input type="checkbox"/> Violence <input type="checkbox"/> Near Miss <input type="checkbox"/> Other	Date	Time	Location
	Sept 19, 2021	12:04	Confederation Line – west of TRE Station
Event Type(s) LRV 21/38 Derailment			

Description of Event

Include details leading up to, during and after the safety occurrence. Describe in detail.

Leading Up to Occurrence:

Electric Rail Operator (ERO) Abdirahman Adam (7977) was called in for an overtime shift 07:00 to 15:30 (Extra 809-12 at Tunney's Pasture Station). ERO Adam's last shift was Friday, September 17, 2021, 05:30 to 14:30 (809-8); he did not work on Saturday, September 18, 2021.

On Sunday, September 19, 2021, Mainline Control (MLC) was receiving calls from multiple EROs about various smells (described as gas, burning, and feces) on trains and in the downtown tunnel. MLC began investigating all trains for the unknown smell – without success. Electric Rail Supervisors (ERS) were inspecting incoming trains at the terminal stations for the smell – without success. LRV 1121/1138 was inspected by ERO Adam and ERS M. Abdu at Blair Station for a gas smell – nothing found.

ERO Adam departed Blair Station at 11:55 operating LRV 1121/1138, travelling westbound on the O-Train Confederation Line – Track 1. CCTV footage captured a loose side-skirt panel, creating minor sparks as it contacted the platform edge while departing St. Laurent Station westbound. Weather conditions at this time were clear, approximately 17°C and calm winds. ERO reported the guideway was normal for rail operations.

During Occurrence:

ERO Adam entered Tremblay Station at 12:02, the side-skirt panel is visibly moving while LRV 1121/1138 docks at the platform, as confirmed on CCTV footage. ERO Adam was discussing a smell of human waste on LRV 1138 with MLC. Review of CCTV showed during departure from Tremblay Station, the CC vehicle of LRV 1121 suddenly dropped while departing Tremblay Station and the side-skirt panel dislodged, resulting in ballast being scattered across the west end of Platform 1 and a visible cloud of dust. The Cancom employee on the westbound platform at Tremblay Station reported a loud noise as LRV 1121/1138 departed the station. After departure, LRV 1121/1138 continued westbound on track one approaching switch 315. Switch 315 went disturbed (later confirmed to be significantly damaged); which caused LRV 1121/1138 to emergency brake (EB). MLC informed ERO Adam to review internal cameras because of reports of possible smoke or fire on LRV 1121/1138. ERO Adam confirmed no fire was present on LRV 1121/1138. MLC instructed ERO Adam to not move the train and stand-by, a system hold was in place.

After Occurrence:

MLC instructed ERO Adam to make necessary announcements to onboard passengers of the situation and complete a passenger count, to determine if assistance for any passengers was necessary. At 12:11, a Track Occupancy Permit (TOP) was in effect. ERO Adam reported 12 passengers were on LRV 1121/1138, no injuries as a result of the incident. Alstom Guideway Technicians entered the limits to inspect LRV and damage. Initial inspection by Alstom technicians indicated the Motor Bogie #2 (BM2) derailed, significant damage to LRV 1121/1138 and track infrastructure. Ottawa Police Services (OPS), OC Transpo's Special Constables Unit (SCU) and Ottawa Fire Department (OFD) were on location to respond. At this time, 12 OFD personnel and 6 Special Constables entered the TOP. Originally, a train-to-train evacuation (using LRV 1101/1104 on Track 2) was planned to evacuate passengers from LRV 1121/1138. However, the OFD Chief on scene requested removing passengers from LRV 1121/1138 and walking them down Track 1 to the access gate adjacent to switch 315. At the time of evacuation, the line remained energized due to the original plan of completing a train-to-train transfer. LRV 1121/1138 was not able to lower the pantograph as it was tangled within the OCS messenger wire. At 12:50, all passengers were off LRV 1121/1138 and the guideway; however, emergency responders remained on the guideway. A full Line 1 closure was announced after 13:00 out of an abundance of caution, staff made the necessary announcements to passengers and R1 bus service was initiated.



OPS took control of the scene and limited entry to emergency personnel only for investigation purposes. SCU supported OPS in scene management while OPS conducted their investigation, collecting contact information from the 11 passengers and walked on Track 1 to locate debris or damage on the guideway. The Transportation Safety Board (TSB) was notified of the occurrence and arrived on scene to begin an investigation into cause of derailment. OPS released the scene back to the City on Monday, September 20, 2021.

Preliminary evidence reviewed by RTM:

- Visual inspection of LRV 1121 on Monday, September 20, 2021 identified the CC (centre car - module of the LRV with one set of doors per side; equipped with the pantograph) vehicle was severely damaged. The pantograph had dislodged from the OCS cable, resulting in the top of the pantograph sitting on top of the contact wire
- Visual inspection of Track 1 on Monday, September 20, 2021 identified significant and extensive damage to the infrastructure from the ease end gate of Tremblay Station on Track 1 up to and including switch 315
- Daily inspection forms for LRV 1121 and LRV 1138 do not indicate there were any concerns prior to morning launch
- New hubs and axels were installed on BM2-021 on September 9, 2021 (new serial numbers: 202941R, 202941)

Further investigation by RTM/Alstom is ongoing.

OC Transpo Chief Safety Officer issued a Safety Order to OC Transpo Director of Rail Operations to work with RTM to investigate the root cause of the derailment and to provide a return to service plan to ensure the safe operation of Line 1.

Sequence of Events:

07:45 – LRV 1121/1138 is launched onto Line 1

11:59 – LRV 1121/1138 enters St. Laurent Station westbound on Track 1. Slight gap visible in side-skirt panel

12:02 – LRV 1121/1138 enters Tremblay Station westbound on Track 1. Increased movement visible on loose side-skirt panel

12:03 – LRV 1121/1138 departs Tremblay Station. Visible cloud of dust and ballast scattered on west side of platform

12:04 – Switch 315 disturbed; LRV 1121/1138 EB'd west of switch 315. System hold in place

12:11 – TOP 216782 in effect

12:17 – ERO Adam informed MLC of a major derailment

12:21 – GT King entered limits

12:25 – Two SCU entered limits

12:26 – Alstom Technician Gurpal entered limits

12:28 – Rail Superintendent Mesic entered limits

12:29 – GT King confirmed LRV 1121/1138 derailed

12:36 – 12 OFD and 6 SCU entered limits. GT King reporting switch 315 is completely damaged

12:38 – LRV 1101/1104 entered limits at TRE Station Track 2 (was to be used for train-to-train evacuation)

12:40 – OFD Chief requesting OCS to be de-energized

12:50 – OFD evacuate passengers from LRV 1121/1138 and are taken outside of TRE high rail access gate (clear of guideway)

13:03 – Line 1 service is cancelled and R1 bus service implemented

14:00 – Transit Service Command Center (SCC) stood up to respond to incident and coordinate service continuity for R1 service. The SCC remained in effect until Tuesday, September 21, 2021.



Evidence Reviewed – Documentation (Policies, Procedures, Training Records, etc), Physical (Photos, measurements, sketches), Expertise Consulted

Document / Material Reviewed	Document / Material Reviewed
Review of the scene	Photos
CAD Report 216785 – Mainline Vehicle Event	CAD Report 216849 – Operational Event
CAD Report 216798 – Track Event/Access	CAD Report 216784 – L1 Operational Event Service Issue
ERO Event Statement	OC Transpo Safety Order
Radio Transcript	City Council Motion
CCTV Footage	RTM Initial Investigation Report

Witness Information – have witness fill out attached statement if one has not been filled out

ID	First Name:	Last Name:	Phone :
1.	Note: SCU collected witness contact information from passengers onboard LRV 1121/1138 and submitted to OPS		

Contributing Factors – People, Environment, Processes, Equipment

ID	Factors	Comments
1.	Lack of Understanding	Two Special Constables exceeded the limits of the Track Occupancy Permit, observed walking on Track 1 eastbound entering the St. Laurent west portal at 14:37. Multiple PA announcements made by MLC to advise Special Constables the area is not under track protection and they should exit the area. At 14:42 it was confirmed the two Special Constables exited the guideway at St. Laurent Station. The Special Constables were performing a search/investigation of Track 1 eastbound at the request of OPS. The SCU Superintendent thought his staff received track authority to complete the search of Track 1 in the eastbound direction. However, the track authority was bounded by the geographical limits of Power Gap 4 to Power Gap 6, effectively, LEE Station to TRE Station. Exceeding the limits of a track authority is a EROR rule violation.
2.	Miscommunication	At the incident scene, there was miscommunication between emergency responders and other staff (SCU, Guideway Technician) on-site related to the energized state of the OCS. Misinformation was being provided to emergency responders, causing a delay in their ability to deliver a response.
3.	Inattention	ERO Adam was troubleshooting with MLC for the human waste smell inside LRV 1138 and the operator's cab. The following is a portion of the radio transcript between ERO Adam and MLC: <i>(MLC) 12:03:16 21-38 I'm going to have you stop your train there at HUR stn we are going to hold you there and ah I'm going to get you to walk outside your train make sure that its not a burning smell we are looking for a train that has a burning smell over</i> <i>(ERO Adam) 12:03:32 its not burning ah it smell ah (background noise on rails) I'm gunna stop my train over ah....</i>



		<p>(MLC) 12:03:51 alright train 21-38 looks like we have a disturbed switch that caused you to EB and we are going to try to get you HUR stn</p> <p>The attention placed on determining the human waste smell inside LRV 1138 may have prevented ERO Adam from identifying possible signs of derailment or mechanical issue with LRV 1121/1138.</p>
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Root Cause(s)

ID	Personal / Job Factor	Comments
1.	Mechanical Failure	An investigation by RTM/Alstom to determine the root cause of BM2 on LRV 1121 derailing on Track 1 is ongoing

Proposed Recommendations to Prevent Re-Occurrence

ID	Proposed Recommendations	Assigned to	Target Date
1.	Conduct root cause analysis, perform risk/hazard assessment, and develop plan to ensure safe operations on Line 1, including a return to service plan	RTM / Alstom	October 15, 2021
2.	At request of City Manager, prior to fleet returning to Line 1 service, identify and retain an independent investigator/expert who will confirm the safety of the return to service plan	Regulatory Monitoring and Compliance Officer	October 15, 2021
3.	Coach Special Constable Unit on requirement to understand the track authority limits. It is important for all personnel entering the guideway on foot be granted track authority and clearly understand the geographical limits pertained to that track authority	Rail Training and Development	October 15, 2021
4.	Communication that the Person-in-Charge of a track authority is responsible for ensuring that each person authorized to enter the limits of track authority is aware of the track authority limits	TOCC	October 15, 2021
5.	Review of communication process at incident scene to identify procedure to provide emergency responders with accurate, timely information and prevent future occurrences of miscommunication to emergency responders	TOCC / Rail Operations	October 15, 2021
6.	Review method to identify person in command at the incident scene. The person in command is responsible for relaying accurate information from MLC to emergency responders, or other necessary stakeholders	TOCC / Rail Operations	October 15, 2021
7.	Ensure all radio users abide by the <i>Electric Rail Operating Rule 3.9 – Brevity</i> , requiring radio communications to be brief, clear, concise, courteous, and convey only essential information	TOCC / RTM	October 15, 2021


Operational Debrief – if applicable to incident

High-level summary of Operational Debrief including date, stakeholders involved, lessons learned, and action items.

Date:

Stakeholders Participating in Debrief:

Lessons Learned:

Action Items:

Responsible:

Persons Participating in Investigation

Representative	Name	Job Title	Attestation	Date
Employer	Ben Sawicki	Coordinator, Transit Safety	<input checked="" type="checkbox"/>	Sept. 21, 2021
Employer			<input type="checkbox"/>	
WHSC			<input type="checkbox"/>	
WHSC			<input type="checkbox"/>	
Other			<input type="checkbox"/>	

B. Sawicki

September 27, 2021

Employer Investigator's Signature

Date

Copies distributed by Employer Investigator to:

- Safety and Compliance (OCTsafetycompliance@ottawa.ca)
- EHSW Branch (accidentreporting@ottawa.ca)
- ESDC
- Employee's Supervisor
- Employee's File
- 805 Belfast Workplace Health and Safety Committee



Appendix – Accident/Incident Cause Reference – This is to be used as a guideline only as it is not inclusive of all possible causes.

Contributing Factors		
People <ul style="list-style-type: none"> ➤ Fatigue ➤ Stress ➤ Busy/rushed ➤ Inattentive/Distracted ➤ Lack of understanding ➤ Misbehaviour/horseplay ➤ Level of experience ➤ Level of training ➤ Physical capability ➤ Health (meds/drugs/alcohol) ➤ Not using PPE ➤ Using equipment improperly ➤ Improper motivation ➤ Poor decision making 	Environment <ul style="list-style-type: none"> ➤ Poor housekeeping/disorder ➤ Noise exposure ➤ Weather ➤ Slippery surfaces (wet, ice, snow, loose gravel, potholes) ➤ Lighting ➤ Temperature ➤ Air contaminants ➤ Congested or restricted area ➤ Inadequate ventilation ➤ Fire/explosion hazards ➤ Vibration or radiation 	Material <ul style="list-style-type: none"> ➤ Hazardous substances ➤ Wrong material used ➤ Improper or inadequate PPE ➤ Instructions not followed ➤ Sharp or heavy objects ➤ Improper storage ➤ Unsecure loads ➤ Difficult to handle manually ➤ Inadequate labels, signage ➤ Defective materials
Equipment <ul style="list-style-type: none"> ➤ Defective tools, equipment or materials ➤ Wear and tear ➤ Inadequate guards/barriers ➤ Wrong equipment used ➤ Not in good working condition ➤ Inadequate maintenance ➤ Inadequate fall protection ➤ Improper or inadequate PPE ➤ Inadequate warning systems ➤ Instructions not followed ➤ Exposure to moving parts 	Process <ul style="list-style-type: none"> ➤ Improper lifting ➤ Ergonomics ➤ Inadequate engineering ➤ Lack of process design ➤ Safe work procedures ➤ Condition changes ➤ Inadequate purchasing ➤ Lockout/Tag out ➤ Inadequate resources ➤ Improper storage ➤ Servicing equipment in operation ➤ Safety devices not operating 	<ul style="list-style-type: none"> ➤ Inadequate supervision ➤ Inadequate safe operating procedures/policies ➤ Enforcement of policies/procedures ➤ Knowledge of hazards ➤ Preventive Maintenance ➤ Regular audits ➤ Communication ➤ Inadequate inspections ➤ Hazard controls ➤ Blind corners
Root Causes		
<ul style="list-style-type: none"> ➤ Inadequate previous accident incident investigation ➤ Safe work practices and/or procedures ➤ Hazard and risk identification process ➤ Lack of a training program ➤ Lack of accountability for safety infractions ➤ Insufficient worker orientation ➤ Insufficient Supervisor training ➤ Failure to report incident 	<ul style="list-style-type: none"> ➤ Allowing unsafe behaviours ➤ Inadequate processes ➤ Lack of incident analysis process ➤ Lack of a communication plan ➤ No action taken on recommended corrective actions ➤ Safe operating procedures not enforced ➤ Health and hygiene control ➤ Materials and services mgmt ➤ Lack of safety meetings 	<ul style="list-style-type: none"> ➤ Hiring and placement standards ➤ Purchase controls ➤ Emergency preparedness and response ➤ Leadership and admin ➤ Management training ➤ Organizational rules ➤ Personal Protective Equipment (PPE) ➤ Program evaluation systems/audits ➤ Inadequate supervision ➤ Inadequate inspections