

(a)(i) Investigations conducted during the year 2011/2012

No	Category (b)	Operator	Investigation Name	Date of occurrence	Some of the findings (c)
1	Collisions during movement of rolling stock	PRASA	PRASA Kaatfontein-Birchleigh collision	05-Jun-10	The driver of Metro train 1842 passed a T-signal at danger colliding with a goods train 2122 which was standing in front of faulty T-signal KFK44, the goods train driver was trying to get authority from TCO to pass this signal at danger. Inadequate enforcement by the operator and lack of compliance by train drivers to faulty T-signals rules. The time it takes the operator to fix the faulty T-signal, the longer the time, the higher the risk of passing T-signals at danger
2	Derailment during movement of rolling stock	TFR	TFR Hectorspruit train derailment	01-Jul-11	8 loaded CFR coal wagons on train 7403 derailed at Hectorspruit on 27 June 2011 as a result of a broken rail.
3	Derailment during movement of rolling stock	TFR	TFR Commondale derailment	27-Dec-10	The hot weather conditions on the day of the derailment. The gradient and length of the down grade approaching the crossover at the entrance to Commondale station from the Confidence side, together with the lack of a longitudinal rail stress monitoring and management system at or near Commondale, and the fact that the line 1 at the north west entrance to Commondale was not de-stressed in the past 12 months.
4	Derailment during movement of rolling stock	PRASA	Shosholozu Meyl Radikofi derailment	28-Jun-10	the points had been deliberately tampered with, causing his train to derail.
5	Derailment during movement of rolling stock	TFR	Bela Bela derailment	08-Oct-10	The track maintenance staff complement was not sufficient for the area. In recorded the voice log, the track master confirms that the occupation area was not protected and the train was not travelling at 15km/h speed restriction. - Radio coverage between Willem and Warmbad stations is very poor; this is shown by the graph on radio coverage. The required signal strength is -100 dBm and the coverage shows that it is below that minimum requirement.
6	Derailment during movement of rolling stock	TFR	Davel (White mamba) derailment	09-Oct-10	The train took the shortest route at a curve due to speed and derailed to the right of the curve.
7	Derailment during movement of rolling stock	PRASA	PRASA Bellville Train Derailment	29-Jul-11	While negotiating turnout 4729, the second bogey of the leading motor coach (13032) took the incorrect road, causing the leading motor coach and first trailer to derail. Old, worn and poorly maintained track infrastructure.
8	Electric Shock	PRASA	PRASA Signal Technician struck by train	24-Aug-10	The technical staff from the Signalling Department, and the Train Traffic Controllers did not adhere to the safety instructions as per the MetroRail General Operating Instructions. A high number of vacancies in the Signalling Department, and Train Control Offices. The technician not wearing his PPE. The yard lights in Pretoria not working.

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9	Level crossing occurrences	TFR	TFR Bloemfontein Hertzberg level crossing collision	29-Sep-11	The discipline of South African road users is poor when approaching level crossings and was the major contributor to this accident.
10	Level crossing occurrences	TFR	Rolle Level crossing collision	31-Jul-10	The driver of the bus stopped but then tried to cross in front of the train, the culture of lawlessness on the South African roads which is exacerbated by inadequate law enforcement. The discipline of South African road users are poor when approaching level crossings and this leads to dangerous habits and actions.
11	Level crossing occurrences	TFR	TFR Bela Bela – Collision on level crossing	22-Jan-11	The observation during the site visit revealed that motor vehicle drivers do not obey road signs; this behavior was identified as the immediate cause for this incident. This was also identified on the risk assessment by TFR. This risk could be mitigated by deploying law enforcement agencies as well as affording better management and controls at level crossing.
12	Malicious damage to property	PRASA	PRASA Train Set Aight at Cavendish Station	01-Oct-10	There are 2 major contributing factors to this incident of which the first is the time it took to fix the faulty 6.6kv which was long and the time it took to introduce bus service to transport commuters which was delayed. The second contributing factor is the absence of public communication or announcements to inform the frustrated commuters.
13	Passenger related occurrences: travelling outside designated passenger area of train	PRASA	PRASA Passenger Fell from a moving train in Bellville station	25-Nov-10	The lack of sufficient rolling stock for the Metro Suburban Service in the Western Cape, the poor quality of commuter services in the Metropolitan Area, the substandard behaviour of an element of commuters and the inadequate level of enforcing appropriate commuter behaviour are the key contributors to the high accident rate commuters experience in and around Cape Town.
14	Persons struck during movement of rolling stock	PRASA	PRASA Nyanga Heideveld Struck children	25-Feb-11	The two toddlers wandered from their home unknowingly and without supervision, the "free access" along a short cut to the rail reserve at an illegal pedestrian crossing between the Manenberg and Gugulethu suburbs
15	Persons struck during movement of rolling stock	PRASA	TFR's Parl-Wellington – Children Struck were struc	04-May-11	Unsupervised children living in close proximity to an unfenced rail reserve wandered onto the track in the path of an oncoming train. The condition where families are living in poorly serviced settlements adjacent to/in the rail reserve where access to the railway tracks is unrestricted and the railway reserve, the railway tracks and the area across the tracks are the closest open space available to residents.

(a)(ii) Investigations conducted during the year 2012/2013

No	Category (b)	Name of Operator	Investigation Name	Date investigation commenced	Some of the findings (c)
1	Collision during movement of rolling stock	PRASA Trading as Metrorail Head office (CENTRAL)	Cor Delfos-kalafong	31-Jan-13	The driver of the train 9017 did not follow the "drive on sight" rule. Inadequate and/or non-adherence to communication procedures by the TCO and train driver. CTC handover procedure inadequate and/or not adhered to.
2	Collision during movement of rolling stock	TRANSNET Freight Rail Head Office (JHB)	TFR Ysterberg	01-Nov-12	The rules instructions and procedures for the effective maintenance of self-normalising points are either non-existent or are not implemented on this section of the line.
3	Derailments during movement of rolling stock	PRASA Trading as Metrorail (Gauteng South Region)	Germiston-Metro TRAIN 7827 Derailed	05-April-12	Germiston - Metro Train 7827 Derailed due to a loose tyre on the Wheel No.7 of plain trailer No 10341, axle No.4.
4	Derailments during movement of rolling stock	TRANSNET Freight Rail Head Office (KZN)	Napier Dangerous Goods train derailment	04-Dec-12	Train 5049 derailed due to a wheel shifting on an axle. The left wheel on axle three of wagon 33017042 shifted on its axle causing the right hand wheel on the same axle to drop between the rails.
5	Derailments during movement of rolling stock	TRANSNET Freight Rail - NATCOR (Standerton)	Val Derailment	14-Aug-12	The derailment was caused by rail break. The rail break propagated from a pre-existing crack, this combined with the cold weather condition precipitated the rail break. The crack could not have been detected by ultrasonic testing due to its size and position.
6	Derailments during movement of rolling stock	TRANSNET Freight rail-Central region (Pretoria)	Derby-Koster Derailment dangerous goods	15-Jun-12	The driver of the truck lost control of the vehicle while to avoid potholes on the road and ended up on the rail. He was aware that there was a train approaching his direction and managed to climb off the truck before the train arrived.
7	Level crossing occurrences	PRASA Trading as Metrorail (Gauteng North Region)	Riebeeck Street (Mint) 0-Level Crossing Accident	08-May-12	High number of near misses. Long trucks take long to cross. Unsafe behaviour of motorists. Sighting distance compromised.
8	Level crossing occurrences	TRANSNET Freight Rail - CENTRAL (Krugersdorp)	Rustenburg Dr Moroka Level Crossing	22-Oct-12	Vehicle driver contravened the rules of the road by not adhering to level crossing signage. Road markings faded. Traffic officers not deployed as agreed. Vehicle driver contravened the level crossing signage.
9	Level crossing occurrences	TRANSNET Freight Rail- Western region (Bellville)	Holazel level crossing collision Northern Cape	11-Jul-12	This incident was attributed to the failure of driver of the road vehicle to observe all the warning at the level crossing, look out, stop and wait for the train to pass (vehicle driver behaviour).
10	People related occurrences: platform - train interchange	PRASA Trading as Metrorail Head Office (CENTRAL)	PRASA GAUNTEG passenger safety	04-Jul-12	Current civil infrastructure especially the platform-train interface is not addressing the requirements of present day commuters. This is often the cause of injuries even deaths of commuters. Current civil infrastructure does not provide facilities for physically impaired commuters to use the train service. This may lead to unsafe practices in an effort to assist these commuters when they endeavour to make use of Metrorail services.

No	Category (b)	Name of Operator	Investigation Name	Date investigation commenced	Some of the findings (c)
11	Unauthorised movements	PRASA Trading as Metrorail (Gauteng South Region)	Lawley- Grasmere – Averted collisions on 14 Nov 2011 and 20 March 2012	17-May-12	The starting signal does not automatically fall back to danger after passing of train.

(a)(iii) Investigations conducted during the year 2013/2014

No	Category (b)	Name Of Operator	Investigation Name	Occurrences Date	Some Of The Findings (c)
1	Collision during movement of rolling stock	TFR	Brakpan yard collision	21 May 2013	The train driver failed to control the train (train handling) due to speed. The TCO gave the authority for the train to pass the signal BPR 8C at danger when the hand point was set for the occupied line and while the train was still moving. Non-adherence to the rules and procedures by the train driver and the TCO. Collision was caused by a Train brake application not being effective when applied. Train 4104 failed to stop and collided with the stationary train at Rustenburg yard. Management failed to ensure that the train drivers are trained in the new generation telemeter and use it correctly. Management failed to ensure that Rustenburg yard has protection for runaway trains. The facing points at Rustenburg were set for the train movement even though the train had not yet been authorized to go over the points into the yard.
2	Collision during movement of rolling stock	TFR	Rustenburg yard collision investigation	22 July 2013	The combination of the poor condition of the turnout (loose bolts at the heel joint, switch blade was not closed properly against stock rail, worn and chipped switch blade) and an out-of-specification wheel profile on the first derailed wagon led to the derailment. Failure by management to develop proper quality control procedures, i.e. wheel profiling workshop, C&W and perway. Lack of skills and training. Failure by management to ensure that there is sufficient availability of spares. Disregard of maintenance standards
3	Collision during movement of rolling stock	TRANSNAMBIB	Kransburg collision Cor Delfos – Kalafong (BOI)	05 August 2013 31 July 2013	Lack of proper communication between the Train Drivers and TCOs. Signal Cable theft. Failure to impose disciplinary measures for the employees who contravene rules and standard procedures. Inadequate number of staff. The lack of sufficient law enforcement. The substandard maintenance of the level crossing. The design of the level crossing prohibits the required signage to be applied correctly
4	Collision during movement of rolling stock	PRASA			

No	Category (b)	Name Of Operator	Investigation Name	Occurrence Date	Some Of The Findings (c)
5	Collision during movement of rolling stock	Prasa	PRASA collision with a TLB	28 May 2013	The trenching exercise was conducted too close to the railway track resulting in the collision of Metro train No. 1865 with a TLB. Failure by management to enforce compliance to the Safety procedures, systems and standards. Failure by management to ensure that contractors submit and comply to Risk Assessment Matrix and Safety procedures related to work contracted for before the actual work commence.
6	Derailment	TFR	Greylinstad Derailment	25 March 2013	A broken rail was the cause for the derailment. A broken rail was caused by wormholes on the rail. The signaling system did not detect a broken rail. Most wheels of the first two wagons to derail had defects that exceeded limits. The skew bogie detector data was inefficient.
7	Derailment	Tans Namib Holdings	Namibia derailment	10 April 2013	The derailment of 3 wagons at 82,22km and subsequently 2 locos and 32 wagons at 88,19km was caused by inadequate vacuum in the train brake system resulting in the train negotiating the curved track at excessive speed. Failure by management to establish a robust procedure for "pulling of strings" en-route and the subsequent charging of the train's brake system and brake tests. Failure by management to establish a robust procedure for "pulling of strings" en-route and the subsequent charging of the train's brake system and brake tests.
8	Derailment	TFR	Iron Ore derailment	10 May 2013	Derailment was caused by a Rail Break at KM 505 mast pole 7. Smooth surface in the foot of the rail. Rail stresses, in this case the cold weather resulted in the rail shrinking
9	Derailment	TFR	Koringberg derailment	10 May 2013	The train derailed due to a broken rail underneath the train. A pre-existing rail crack was undetected.
10	Derailment	TFR	Pofisi-Westfalia derailment	13 June 2013	The incident was attributed to high speed on approaching and when traversing the 141m radius curve. The root cause is indeterminate as there was inadequate evidence for the investigation to conclude about the driver behaviour and deduce what was happening in the footplate prior to this incident.
11	Derailment	TFR	Moravia-De Hoek Derailment	22 August 2013	The train derailed due to the opening of the rail gauge underneath the train. Poorly maintained railway track
12	Derailment	TFR	Melville, KZN Derailment	04 September 2013	The train derailed due to the opening of the rail gauge underneath the train. Poorly maintained railway track

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13	Derailment	Sappi	Sappi Derailment	10 September 2013	Two derailments occurred on the siding and the first derailment on 24 July 2013 the immediate cause was due to points being half cocked and the root cause was the failure from the shunter to ensure that the point blades were properly closed. Second derailment on the 06 of August was due to negligence from the shunters. They ran through points that were incorrectly set and try to push back resulting in a derailment.
14	Derailment	TFR	Richardsbay , KZN Derailment	17 September 2013	Whilst cleaning the locomotives, he cleaner inadvertently moved train controls and the six light locomotives started and ended up colliding with the rear of Train 4812 at a maximum speed of 76.56 km/h. Failure by the driver to secure the light locomotives before vacating footplate.
15	Derailment	TFR	Kameeldrift derailment	28 May 2013	The derailment of 12 wagons was caused by a turned off axle on wagon number 50703056 that overheated due to hot bearing. Failure by TFR to ensure that the TCO fully understand the difference between a valid alarm and an invalid one when displayed on the CTC screen.
16	Derailment	PRASA	PRASA Rosslyn derailment	27 November 2013	The train was authorized to pass the signal ROS 234 at danger whilst the points were incorrectly set. TCO authorized the train without satisfying himself that the points are correctly set for the desired movement.
17	Derailment	Prasa	Derailment of PRASA train between Isando and Elandsfontein stations	03 January 2014	Wheel number 8 on motor coach 19534 had a loose tyre. This caused the set of wheels to take the wrong road on the frog when the set crossed over to the main line. The two weekly visual wheel condition monitoring inspections which also include listening to the pitch sound emitted by the wheel after tapping or knocking the wheel with a hammer by staff at rolling stock workshops is inadequate and limited to the workshop. Inadequate tyred wheel quality checks and quality assurance measures at maintenance depots and during operation.
18	Level crossing occurrences	PRASA	PRASA Western Cape Eerterivier Level crossing collision	21 June 2013	sub-standard behaviour by road vehicle driver by disregarding the level crossing signage. There is lack of enforcement at the level crossing, for road as well as train traffic. The level crossing has high volumes of heavy road traffic over the crossing.
19	Level crossing occurrences	TFR	Hectospruit (Nelspruit) (BO)	31 July 2013	substandard act of the road vehicle driver in that he did not comply with the level crossing signage in that he did not stop before proceeding across the level crossing in front of the oncoming train.
20	Level crossing occurrences	Sasol	Sasolburg_Level_Crossing Investigation	05 December 2013	Failure by the driver of the vehicle to obey the level-crossing signage.
21	Level crossing occurrences	TFR	Tabak_Bleskop_Level_Crossing Investigation	25 January 2014	Failure by the driver of the vehicle to obey the level-crossing signage.

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22	Persons struck during movement of rolling stock	TFR	Trichard yard incident	29 April 2013	Failure by yard official to apply the hand brakes and/or scotch blocks before uncoupling the three wagons on the middle line as per normal procedure, which led to the wagons rolling down the slope. Poor or insufficient supervision during shunting operation on the yard, which led to substandard working practices going unnoticed. Disregard of procedures.
23	Persons struck during movement of rolling stock	TFR	Ferrogate Occurrence	25 September 2013	The C&W Examiner stood very close to the main line when trying to establish communication with the driver of train that was standing in the loop line. TFR has no approved process to activate a C&W examiner to work between moving trains in sections. Ferrogate station has no lighting masts and vegetation is growing in the railway reserve. The investigation revealed that TFR is experiencing an increase in the number and length of trains in the Pyramid-Tabazimbi line.
24	Unauthorised movements	PRASA	PRASA Elandsfontein SPAD	12 April 2013	Failure to observe the shunt signal prior to moving the train to the yard. Poor communication between the driver and the TCO. Normal train operations (entering and exiting Elandsfontein station) were changed at the station due to the failure of points from the Isando side which were clamped. Failure by management to communicate the risks introduced by the changes to the train crew and TCOs is one of the root causes to the occurrence.
25	Unauthorised movements	PRASA	Lawley-Grasmere SPAD	23 April 2013	Failure of the train driver to observe and ensure the displayed signal aspect before proceeding, thereby contravening the Metrorail Train Working Rule 173 (1) and 173(2).
26	Unauthorised movements	PRASA	PRASA Western Cape Station SPAD	23 April 2013	The driver failed to observe signal CT 94 before her departure from platform 13, and subsequently passed it at danger. Management does not conduct safety talks or awareness on a regular basis. Management failed to arrange and release the train driver to attend symposium on a six monthly as was scheduled
27	Unauthorised movements	PRASA	PRASA Crown SPAD	30 April 2013	Failure of the train driver to observe and ensure the displayed signal aspect before proceeding, thereby contravening the Metrorail Train Working Rule 173 (1) and 173(2).
28	Unauthorised movements	PRASA	ETMAS	10 May 2013	Dal Josefat station does not have a departure signal and Metro train 3524 was allowed into the station before a flagman was arranged to authorize trains to depart the station. Dal Josefat station does not have a departure signal and Metro train 3524 was allowed into the station without clear communication between TCO and the train driver on the method that will be used to depart trains from the station. The driver departed Dal Josefat Station without authority. Failure by management to ensure compliance to the abnormal working procedures. Failure by management to provide proper and relevant training to the drivers

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29	Unauthorised movements	TFR	De Hoek Station_Wagon_Run away_ Investigation	22 August 2013	The detached vehicles were not properly secured before the locomotives were uncoupled. Lack of supervision during shunting. Lack of clear job instruction (there is a confusion whether train assistants or yard officials are responsible for shunting operation at De-Hoek)
30	Unauthorised movements	Gautrain	Skipping Sandton station	19 November 2013	When the train driver was approaching Platform B of Sandton station, he had a lapse in concentration and misjudged his position relative to the platform, miscalculating his braking which caused him to skip the platform. a) The design of BOC signalling system is such that departure signals at stations stay at a proceed aspect when the next section is not occupied