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| Reporting Body | IT Ministero delle infrastrutture e dei trasporti | ID | IT-2903 |
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Occurrence Summary

| | | | |
|--------------------|---|---------------|---|
| What | Location | | |
| Date of occurrence | 24-10-13 | Location name | Line between Locate Triulzi - Milano Rogoredo |
| Local time | 04:51 | Latitude | 45:21:30 North |
| Event type | Rolling stock events Fire in RS (Fire in loco) | Longitude | 9:13:18 East |

Description Train 50346, relationship Alessandria shunting yard - Chiasso shunting yard (14 wagons containing dangerous goods: UN code 1077, Danger code 23 , standing in line due to fire in the locomotive 655-520.

Direct Cause descrip Failure of insulating material inside the D.C. filter capacitor in the cabinet of the Filter High Voltage (FAT) positioned in input to the two static converters ARSA.

Final Report

| Nam | Desc | Type | Size | Last | Orga | Repo |
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Other Attachments

| Nam | Desc | Type | Size | Last | Orga | Repo |
|-----|------|------|------|------|------|------|
| | | | 0 | | | |

What

Title Fire in RS, 10/24/2013, Line between Locate Triulzi - Milano Rogoredo (Italy)

| | | | |
|-----------------|------------------------------------|------------------|----------|
| Occurrence type | Rolling stock events Fire in RS | Occurrence Class | Accident |
|-----------------|------------------------------------|------------------|----------|

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|--------------------|----------|------------|-------|
| Date of occurrence | 24-10-13 | Local time | 04:51 |
|--------------------|----------|------------|-------|

Events Rolling stock events - Fire in RS (Fire in loco)

Descriptions

| | | | |
|----------|---------|----------------------|---------------------------------------|
| Language | English | Translation provider | Information providers own translation |
|----------|---------|----------------------|---------------------------------------|

Description Train 50346, relationship Alessandria shunting yard - Chiasso shunting yard (14 wagons containing dangerous goods: UN code 1077, Danger code 23 , standing in line due to

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fire in the locomotive 655-520.

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|------------------------|---|---------------------|--------------|
| Location name | Line between Locate Triulzi - Milano Rogoredo | | |
| Railway System type | Railway | Country | Italy |
| Location type | Line | Border Country | |
| Line type | Double track | Line number | |
| Allowed line speed | | Km number | |
| Latitude | 45:21:30 North | Longitude | 9:13:18 East |
| Location description | | | |
| Additional location in | | | |
| Location type details | Plain track | Fixed installations | |

Occurrence details

Railway vehicles

| | | | |
|---------------------|-------------------------|--------------------|-------|
| Movement type | Freight train | Train number | 50346 |
| RU | Italy Trenitalia SpA | Wagons overturned | No |
| Train speed at mom | | Passengers onboard | No |
| Vehicle description | | | |

Other objects involved in the occurrence

Other objects

Parties involved

| | | | |
|-------------|-----------------|----|------------------------|
| IM Involved | Italy - RFI SpA | RU | Italy - Trenitalia SpA |
|-------------|-----------------|----|------------------------|

| | Fatalities | Serious injuries | Minor injuries |
|----------------------|------------|------------------|----------------|
| Passengers | 0 | 0 | 0 |
| Staff | 0 | 0 | 0 |
| Level crossing users | 0 | 0 | 0 |
| Unauthorised persons | 0 | 0 | 0 |
| Others | 0 | 0 | 0 |
| Total | 0 | 0 | 0 |

Material consequences

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|--------------------|---------------|----------------------|-------------|
| Material Damage | Rolling stock | Estimated total mate | < 150 000 € |
| Damage description | € 30000,00 | | |

Images

| Name | Description | Type | Size | Last modified | Organization | Repository |
|------|-------------|------|------|---------------|--------------|------------|
| 0 | | | | | | |

Causation

Causes

| | | | |
|----------|---------|----------------------|---------------------------------------|
| Language | English | Translation provider | Information providers own translation |
|----------|---------|----------------------|---------------------------------------|

Direct Cause description

Failure of insulating material inside the D.C. filter capacitor in the cabinet of the Filter High Voltage (FAT) positioned in input to the two static converters ARSA.

Underlying and root causes description

Lack of special checks on the components of the FAT, particularly on the condenser and the discharge resistor with particular regard to the presence of bulges, oil leaks, deformations of the anchorage areas of the insulators, traces of discharges or beading.

Lack of reports on bench about any short circuit conditions of electrical components in HT cab, with the procedures to be followed in case of opening of the IR due to a short circuit, and in the lack of systems of block of the FAT

Causation classification

Rolling stock events - Fire in RS (Fire in loco)

1 - Locomotives and traction units

1 - Procedures

2 - Technical availability

3 - Design

Recommendations

Recommendation

Issuing information

| | | | |
|----------------------|-------------------|-----------------|-----|
| Recommendation title | n. 1 | | |
| Recommendation ID | REC-000102 | End implementer | RU |
| Status | Sent to addressee | Addressee | NSA |
| Issue date | 25-06-14 | | |

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Recommendation texts

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|----------|---------|----------------------|---------------------------------------|
| Language | English | Translation provider | Information providers own translation |
|----------|---------|----------------------|---------------------------------------|

Recommendations text

It is recommended to the NSA to strive so that the RU introduces additions or changes to maintenance plans for the operations to be performed on static converters ARSA, providing:

- a. visual inspections more accurate and better specified;
- b. checks and instrumental testing, such as the measurement of the capacitance value of the capacitors, the measure of the resistors in precharge and discharge,
- c. the execution of these checks to tighter deadlines

Implementation information

| | |
|-----------------------|---------------------|
| Implementation status | Implementation date |
|-----------------------|---------------------|

Unknown

NSA Response

NIB Comment

Recommendation

Issuing information

| | | | |
|----------------------|-------------------|-----------------|-----|
| Recommendation title | n. 2 | | |
| Recommendation ID | REC-000103 | End implementer | RU |
| Status | Sent to addressee | Addressee | NSA |
| Issue date | 25-06-14 | | |

Recommendation texts

| | | | |
|----------|---------|----------------------|---------------------------------------|
| Language | English | Translation provider | Information providers own translation |
|----------|---------|----------------------|---------------------------------------|

Recommendations text

It is recommended to the NSA to strive so that the RU makes a rapid campaign of careful checks (visual and instrumental) on the capacitors of all locomotives of its fleet of rolling stock belonging to the second series of electric locomotives E656 and E655, equipped with static converter ARSA 120 kVA

Implementation information

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|-----------------------|---------------------|
| Implementation status | Implementation date |
|-----------------------|---------------------|

Unknown

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|----------------|---|----|---------|
| Reporting Body | IT Ministero delle infrastrutture e dei trasporti | ID | IT-2903 |
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NSA Response

NIB Comment

Recommendation

Issuing information

| | | | |
|----------------------|-------------------|-----------------|-----|
| Recommendation title | n. 3 | | |
| Recommendation ID | REC-000104 | End implementer | RU |
| Status | Sent to addressee | Addressee | NSA |
| Issue date | 25-06-14 | | |

Recommendation texts

| | | | |
|----------|---------|----------------------|---------------------------------------|
| Language | English | Translation provider | Information providers own translation |
|----------|---------|----------------------|---------------------------------------|

Recommendations text

It is recommended to the NSA to strive so that the RU assesses whether to equip with automatic sprinkler systems all locomotives E655

Implementation information

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|-----------------------|---------------------|
| Implementation status | Implementation date |
| Unknown | |

NSA Response

NIB Comment

Recommendation

Issuing information

| | | | |
|----------------------|-------------------|-----------------|-----|
| Recommendation title | n. 4 | | |
| Recommendation ID | REC-000105 | End implementer | RU |
| Status | Sent to addressee | Addressee | NSA |
| Issue date | 25-06-14 | | |

Recommendation texts

| | | | |
|----------|---------|----------------------|---------------------------------------|
| Language | English | Translation provider | Information providers own translation |
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Recommendations text

Reporting Body

IT
Ministero delle infrastrutture
e dei trasporti

ID

IT-2903

It is recommended to the NSA to strive so that the RU assesses whether to integrating the instrumentation of the driving benches of all locomotives E655, providing the presence of reports relating to conditions of short circuit of electrical components in the cabin HT, in order to avoid undue reclosing of the rapid switch in the presence of equipment in short circuit

Implementation information

Implementation status

Implementation date

Unknown

NSA Response

NIB Comment

Recommendation

Issuing information

Recommendation title n. 5

Recommendation ID REC-000106

End implementer

IM

Status Sent to addressee

Addressee

NSA

Issue date 25-06-14

Recommendation texts

Language

English

Translation provider

Information providers own
translation

Recommendations text

It is recommended to the NSA to suggest to the IM a reflection on the effectiveness and the possibility of actions for improvement of the coordination of emergency assistance in situations related to accidents, particularly with regard to procedures and communications between staff of RU, of IM and every person responsible for technical rescue activities, health and civil protection. This is also the purpose of the identification of the points of these events as precise as possible and topographically defined and for the achievement of the places by rescue from road side.

Implementation information

Implementation status

Implementation date

Unknown

NSA Response

NIB Comment

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Recommendation

Issuing information

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|----------------------|-------------------|-----------------|-----|
| Recommendation title | n. 6 | | |
| Recommendation ID | REC-000107 | End implementer | RU |
| Status | Sent to addressee | Addressee | NSA |
| Issue date | 25-06-14 | | |

Recommendation texts

| | | | |
|----------|---------|----------------------|---------------------------------------|
| Language | English | Translation provider | Information providers own translation |
|----------|---------|----------------------|---------------------------------------|

Recommendations text

It is recommended to the NSA to strive so that every RU provides for the transport of dangerous goods the use of locomotives equipped with automatic sprinkler systems

Implementation information

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|-----------------------|---------|---------------------|--|
| Implementation status | Unknown | Implementation date | |
|-----------------------|---------|---------------------|--|

NSA Response

NIB Comment

Recommendation

Issuing information

| | | | |
|----------------------|-------------------|-----------------|-----|
| Recommendation title | n. 7 | | |
| Recommendation ID | REC-000108 | End implementer | IM |
| Status | Sent to addressee | Addressee | NSA |
| Issue date | 25-06-14 | | |

Recommendation texts

| | | | |
|----------|---------|----------------------|---------------------------------------|
| Language | English | Translation provider | Information providers own translation |
|----------|---------|----------------------|---------------------------------------|

Recommendations text

It is recommended to the NSA to notify to the IM the need to verify the procedures, in order to achieve a timely and controlled detachment of the power line and the immediate grounding, in the presence of an alert of the development of a fire to the rolling stock that is given and confirmed by the driver.

In addition, must be considered the need to reduce substantially the time required for the placement of the grounding equipment, also through an assessment of the IM on the possibility of implementing a delegation to external parties (eg. RUs, firefighters, etc. .), without having to wait for the arrival on site of the staff of the IM. This is to prevent a similar event, that if not promptly controlled, can generate a serious accident, both in case of transport of dangerous goods and in the case of passenger transport.

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Implementation information

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|-----------------------|---------------------|
| Implementation status | Implementation date |
| Unknown | |

NSA Response

NIB Comment

Causation links

Rolling stock events - Fire in RS (Fire in loco)
 Subsystem - Rolling stock - Locomotives and traction units
 Causal factors - Procedures
 Causal factors - Technical availability
 Causal factors - Design

Investigation details

| | |
|----------------------|--|
| Legal Basis | National rules imposed by implementing of the Safety Directive 2004/49/EC - in light of Article 19, §2 of SD - (b) it forms part of a series of accidents or incidents relevant to the system as a whole |
| Other reason descrip | |

| | | | |
|-------------------------|-------------------|------------------------|---|
| ID | IT-2903 | Reporting Body | Ministero delle infrastrutture e dei trasporti |
| National investigatio | | Investigator in charge | |
| Occurrence creation | 04-11-13 12:11:44 | | |
| Decision to investigate | 24-10-13 | | |
| Declaration date | 04-11-13 | | |
| Date of IM/RU notific | 24-10-13 | | |

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|----------------|--------------|----------------------|-----------|
| Report Type | Final report | Workflow Status | Validated |
| Report Version | 2 | Investigation Status | Closed |

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| Other Attachments | Name | Descriptio | Type | Size | Last | Organizati | Repositor |
|-------------------|------|------------|------|------|------|------------|-----------|
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|--------------|----------------------|--|---------------------|---------|----------------------------|------------|-----------|
| Final Report | Name | Descriptio | Type | Size | Last | Organizati | Repositor |
| | FINAL_RE PORT.pdf | Final report and Official recomme ndations | applicatio n/pdf | 8180474 | 4/30/2015 3:30:50 PM | Softeco | |